Mind and Its Disease in Enlightenment British Medicine

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Abstract

This thesis will examine the ideas on the mind and its disorders in British medicine from around 1660 to about 1780, corresponding roughly to 'the long eighteenth century' of Roy Porter or 'l'âge classique' of Michel Foucault. The period starts with the medicine of the Scientific Revolution, and ends just before the 'Psychiatric Revolution' started. It is concerned with the pre-history of British psychiatry during the Enlightenment.

Psychiatry was not an independent discipline during this period, so medical ideas about the human mind and madness will be considered in the schemes of general medicine. Changes in the understanding of madness will be traced with reference to those in general physiology and pathology. Major medical writers to be examined include: Thomas Willis, Archibald Pitcairn, Richard Mead, Nicholas Robinson, George Cheyne, William Battie, John Monro, and William Cullen.

The interplay between medical ideas on the mind and madness, and contemporary philosophical and religious thinkings will also be examined. The influence of the philosophies of Descartes, Locke, Hume and some others upon psychiatric thinking will be looked at. Here the relation was often delicate. Medical writers did not simply adopt philosophical and religious frameworks of the mind, but more often tried to differentiate the scope of medicine from that of metaphysics, especially in the earlier part of the eighteenth century. As the century went on, there was a shift toward fusing philosophical discourse on the mind and medical discourse on the body, and hence a shift toward psychological understanding of madness. David Hartley and William Cullen represented the trends.

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List of Abbreviations

Ann.Sci.	Annals of Science
Brit.Jour.Hist.Sci.	The British Journal for the History of Science
Bull.Hist.Med.	Bulletin of the History of Medicine
DHI	Dictionary of the History of Ideas
DNB	Dictionary of National Biography
DSB	Dictionary of Scientific Biography
Hist.Sci.	History of Science
Jour.Hist.Behav.Sci.	Journal of the History of the Behavioral Sciences
Jour.Hist.Bio.	Journal of the History of Biology
Jour.Hist.Ideas	Journal of the History of Ideas
Jour.Hist.Med.	Journal of the History of Medicine and Allied Sciences
Jour.Hist.Phil.	Journal of the History of Philosophy
Med.Hist.	Medical History
Stud.Hist.Phil.Sci.	Studies in History and Philosophy of Science
Stud.Volt.	Studies on Voltaire and the Eighteenth Century
WIHM	The Wellcome Institute for the History of Medicine

To Mika

Introduction

Historiography of Eighteenth-century Psychiatry

Roy Porter has rightly assessed that the British history of psychiatry has been transformed over the last decade.[1] Since the late 1970s, medical, social, legal, cultural, and sociological historians have produced a fast-growing body of studies on psychiatry and madness, partly in response to the stimulations and provocations given by so-called anti-psychiatry and the late Michel Foucault.[2] Without underestimating the contributions of the previous generations, one can say that recent works on the history of psychiatry have achieved a remarkably higher standard of historical scholarship in a very short space of time.[3] They have sifted a vast amount of hitherto neglected or little-read manuscripts and published materials, and have examined their contents in a more detailed way. Departing from the former 'in-house' approach, they have related psychiatry in the past

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1. Roy Porter, 'History of Psychiatry in Britain,' History of Psychiatry, 1991, 2: 271-79, esp., 271. Here I am not going to present a through historiographical assessment of the recent scholarship in the history of British psychiatry. For the studies on the nineteenth century, my knowledge in the present literature is limited, and as for the eighteenth century, I will be highly selective.

2. For anti-psychiatry, see, for instance, Thomas Szasz, The Myth of Mental Illness (London: Granada, 1972). As for the work of Foucault, I have used the French original, Michel Foucault, Histoire de la folie à l'âge classique, 2nd ed. (Paris: Éditions Gallimard, 1972). There exists a violently abridged and seriously misleading English translation, Madness and Civilization (1965).

3. For the contributions before the historiographical revolution, see, inter alia, Richard Hunter and Ida Macalpine, Three Hundred Years of Psychiatry 1535-1860 (London: Oxford U.P., 1963; rept. New York: Carlisle, 1982); idem., George III and the Mad-Business (London: Allen Lane, 1969; London: Pimlico, 1991).

with much broader issues, and have put it in the contexts of social, political, economical, and ideological milieu.[4]

The majority of book-length studies have examined the period after around 1800, with the exceptions of the works by Foucault, Porter, and Michael MacDonald. This is fairly understandable if one considers drastic changes in psychiatry which took place from the early nineteenth century. The problem of pauper lunatics was discussed at Westminster in the special committees established for the purpose, such as the Select Committee of the House of Commons 'to investigate the state of the criminal and pauper lunatics' in 1807. The debates at the Parliaments culminated in the Lunatics Act of 1845, which made it compulsory to build a county asylum.[5] The public asylums created a new landscape of lunacy, and the number of institutionalized lunatics soared from about 10,000 in 1800 to around 100,000 in 1900.[6] Also the private sector of psychiatric treatment played a significant role in changing the outlook and the content of psychiatry in the nineteenth century. The York Retreat, the private Quaker institution initially established in protest against abuse in the public asylum in the city, provided the reformers with a paradigm to

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4. To name only a few of the studies: Michael MacDonald, Mystical Bedlam: Madness, Anxiety, and Healing in Seventeenth-Century England (Cambridge: Cambridge U.P., 1981); Roy Porter, Mind-Forg'd Manacles: a History of Madness in England from the Restoration to the Regency (London: the Athlone Press, 1987); Andrew Scull, Museums of Madness: the Social Organization of Insanity in Nineteenth-Century England (London: Allen Lane, 1979; Harmondsworth: Penguin, 1982); idem, ed., Madhouses, Mad-Doctors, and Madmen: the Social History of Psychiatry in the Victorian Era (London: Athlone Press, 1981). Anatomy of Madness: Essays in the History of Psychiatry, eds. by W.F. Bynum et al., 3 vols. (London: Tavistock, 1985-88). Porter, 'History of Psychiatry in Britain' includes an excellent assessment of the recent British literature on the topic.

5. Scull, Museums of Madness, pp.50-124.

6. Scull, Museums of Madness, pp.187-220; Kathleen Jones, Lunacy, Law, and Conscience (London: Routledge and Kegan Paul, 1955), p.116; Roy Porter, 'Madness and Its Institutions,' in Medicine in Society: Historical Essays, ed. by Andrew Wear (Cambridge: Cambridge U.P., 1992), 277-301.

follow. Especially, many reformers tried to adopt its 'moral treatment,' which replaced former physical restraint and medications with the emphasis on intimate and benevolent familial environment to help the patients' mind to restore sanity.[7] The interplay between the public and private institutions gave further impetus to the reform in lunacy. Many of these institutions have left relatively rich and detailed diagnostic and administrative records, which are necessary for a solid historical study.

Largely based on these institutions, the new profession of mad-doctors and the new specialized branch of psychiatry were emerging. During the nineteenth century, they were establishing their own technical, intellectual, professional, and ideological concerns, sometimes including fundamental differences among the newly-created 'psychiatrists.'[8] Accordingly, the amount of medical writings dedicated to the topic of madness drastically increased in the course of the nineteenth century. This is exemplified by the number of entries in Hunter and Macalpine's Three Hundred Years of Psychiatry 1535-1860: the book spends almost one-half of its entire pages on the period from 1800 to 1860, one-fifth of the time-span it covers.

Historians' concentration on these reforms and revolutions, however, has created a historiographical bias and sometimes over-emphasis on the gap between the nineteenth century and the period before. Serious

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7. The York Retreat and its 'moral treatment' has been one of the foci of the research and the debate. The relevant literature includes: Michel Foucault, Histoire de la folie; Michael Donnelly, Managing the Mind (London: Tavistock, 1983); Anne Digby, Madness, Morality and Medicine: a Study of the York Retreat 1796-1914 (Cambridge: Cambridge U.P., 1985). For the private madhouse at Ticehurst, see Charlotte MacKenzie, 'A Family Asylum: a History of the Private Madhouse at Ticehurst in Sussex, 1792-1917,' University of London, Ph.D., 1987.

8. Scull, Museums of Madness, pp.125-185; W.F. Bynum, 'Rationales for Therapy in British Psychiatry, 1780-1835,' Med.Hist., 1974, **18**: 317-34; Roger Cooter, 'Phrenology and British Alienists, ca. 1825-1845,' in Madhouses, Mad-Doctors, and Madmen, ed. by Scull, 58-104; L.S. Jacyna, 'Somatic Theories of Mind and the Interests of Medicine in Britain, 1850-1879,' Med.Hist., 1982, **26**: 233-58.

attempts to revise the historiographical distortion have not been made until Roy Porter started to examine psychiatry in the 'long' eighteenth century (by which term Porter means the period from the Restoration to the Regency). Throwing new light on the neglected period, Porter challenged the bleak picture about eighteenth-century environment in which the mad were treated, kept, and understood, and successfully rectified the former over-emphasis on discontinuities between the ethos of eighteenth-century psychiatry and that of nineteenth-century psychiatry.[9] Refuting MacDonald's thesis which has characterized the eighteenth century as the period when former psychological and religious healing was lost, and the flat medicalization, the brutal treatment and the confinement of madness were going on, Porter has shown that the long eighteenth century was not a disaster for the mad, and the period did not lose its rich and nuanced culture about madness.[10] Challenging Andrew Scull's view of eighteenth-century psychiatry as a business to domesticate, so to speak, a wild beast, Porter has proved that compassionate and benevolent attitude towards lunatics, which have been regarded as the innovation and the hallmark of nineteenth-century reforms in lunacy, had a substantial presence also in the eighteenth century.[11] Moreover, Porter has rectified the former image of private madhouses as places of mercenary trade, the hotbeds of abuse and illegal confinement, and the enemy of the progress of humanitarian psychiatry. Instead, he maintained that private madhouses in the eighteenth century served as the gestation site of the new psychiatric profession, putting them in the broader context of the coming of the

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9. As Porter has pointed out, Whiggish historians, Foucault, Scull, and MacDonald all agreed on that the eighteenth century was a 'dark age' for the mad. See Mind-forg'd Manacles, p.4.

10. Porter, Mind-forg'd Manacles, pp.4, 8 & 33-109; MacDonald, Mystical Bedlam, pp.197, 230-231.

11. Porter, Mind-forg'd Manacles, pp.143-47; Andrew Scull, 'Domestication of Madness,' Med.Hist., 1983, 27: 233-48.

commercialization of medical service at that time.[12] Following largely Porter's lead and concentrating on Bedlam, Jonathan Andrews has demonstrated that Bedlam in the eighteenth century was not an ineffectual receptacle of the mad and a pandemonium of abuse and cruelty, but a place where the patient received medical treatment.[13] Andrews also proved that respectable and professional mad-doctors were not the invention of the nineteenth century, but Bedlam doctors were enjoying a considerable amount of both respect and prestige in the Georgian era.[14] Mainly thanks to Porter's and Andrews' works, we are now in a far better position to understand the debt of nineteenth-century psychiatry to psychiatry in the previous century, and to assess the uniqueness of the outlooks and content of psychiatric care in the both centuries.

Study of eighteenth-century psychiatry and madness has been conducted also in the area what used to be regarded as marginal and insignificant domains, such as literary and/or visual representations of madness and sufferers of mental disturbances; psychological devices in fiction; the voices of the mad themselves. Perceptive literary critics like Michael DePorte, Max Byrd, and Brian Connery have described how madness (often embodied in the form of Bedlam) haunted the literary imagination of eighteenth-century literary figures such as Swift, Pope,

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12. Porter, Mind-forg'd Manacles, pp.167-228; idem, 'Madness and Its Institutions.' For eighteenth-century private madhouses, see William Ll. Parry-Jones, The Trade in Lunacy (London: Routledge and Kegan Paul, 1972).

13. Jonathan Andrews, "'Hardly a Hospital, but a Charity for Pauper Lunatics"?: Therapeutics at Bethlem in the Seventeenth and Eighteenth Centuries,' in Medicine and Charity Before the Welfare State, eds. by Jonathan Barry and Colin Jones (London: Routledge, 1991), 63-81. See also Patricia Allderidge, 'Management and Mismanagement at Bedlam, 1547-1633,' in Health, Medicine and Mortality in the Sixteenth Century, ed. by Charles Webster (Cambridge: Cambridge U.P., 1979), 141-64; idem, 'Bedlam: Fact or Fantasy?' in The Anatomy of Madness, vol.2., eds. by W.F. Bynum et al. (London: Tavistock, 1985), 17-33.

14. Jonathan Andrews, 'A Respectable Mad-Doctor?: Richard Hale FRS,' Notes and Records of the Royal Soceity of London, 1990, **44**: 169-203.

Johnson and Sterne.[15] Sander Gilman's pioneering study of visual representations of madness from the late Medieval Age to the twentieth century included many materials from the eighteenth century.[16] As the nineteenth century had John Perceval's Narrative and Daniel Schreber's Memoirs, the long eighteenth century had Goodwin Wharton's autobiography and George Trosse' and William Cowper's account of their own mental breakdown and inner struggle for recovery, which again have been examined by Porter.[17]

Problems: the intellectual history of Enlightenment psychiatry

As is evident from the brief historiographical account given above, the recent history of psychiatry has been multi- and inter-disciplinary. Medical, social, legal, cultural, literary, sociological historians have vastly contributed to the field, in sharp contrast to the situation a few decades ago, when only medical historians and psychiatrists were writing 'in-house' history of psychiatry.[18]

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15. Max Byrd, Visits to Bedlam (Columbia: University of South Carolina Press, 1974); Michael Deporte, Nightmares and Hobby Horses: Swift, Sterne and Augustan Ideas of Madness (San Marino: Huntingdon Library, 1974); Brian A. Connery, 'Self-Representation, Authority, and the Fear of Madness in the Works of Swift,' Studies in Eighteenth-Century Culture, 1990, **20**: 165-82; Roy Porter, '"The Hunger of Imagination": Approaching Samuel Johnson's Melancholy,' in The Anatomy of Madness, eds. by Bynum et al., vol.1, 63-88. See also papers in Christopher Fox ed. Psychology and Literature in the Eighteenth Century (New York: AMS Press, 1987).

16. Sander L. Gilman, Seeing the Insane (New York: John Wiley & Sons, 1985).

17. Roy Porter, Mind-forg'd Manacles, pp.247-268; idem, The Social History of Madness (London: Weidenfeld and Nicolson, 1987). See also the pioneering work by Dale Peterson ed., A Mad People's History of Madness (Pittsburgh: University of Pittsburgh Press, 1982).

18. Besides Hunter and Macalpine's works cited above, the 'in-house' studies include: Gregory Zilboorg, A History of Medical Psychology (New

However, one branch of the historical discipline has not made substantial contribution to the area, especially to the study of eighteenth-century psychiatry. This silent sector is so-called intellectual history or the history of ideas.[19] For the nineteenth century, we have a number of detailed studies attempting historical analysis of the intellectual content of psychiatry and related disciplines at that time. Michael Clark, Roger Cooter, W.F. Bynum, Roger Smith, and German Berrios have surveyed a wide range of topics in the nineteenth century, such as the conflict and congruence between psychological and somatic thinkings in psychiatry, the impacts of phrenology, the formation of physiological psychology, and the history and implications of various diagnostic categories.[20] In contrast,

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York: W.W. Norton & Co., 1941); Erwin H. Ackerknecht, A Short History of Psychiatry, 2nd ed., trans. by Sula Wolff (New York: Hafner, 1968); Denis Leigh, The Historical Development of British Psychiatry (Oxford: Pergamon, 1961); Stanley W. Jackson, Melancholia and Depression: from Hippocratic Times to Modern Times (New Have: Yale U.P., 1986).

19. The discipline of so-called intellectual history as such seems to be declining and some intellectual historians are being alarmed. See William J. Bouwsma, 'Intellectual History in the 1980s: from History of Ideas to History of Meaning,' Journal of Interdisciplinary History, 1981, 12: 279-91; Joel Colton, 'Intellectual History in the 1980s: the Case for the Defence,' Journal of Interdisciplinary History, 1981, 12: 293-298; John E. Toews, 'Intellectual History after the Linguistic Turn: the Autonomy of Meaning and the Irreducibility of Experience,' American History Review, 1986, 92: 879-907; Donald R. Kelly, 'What is Happening to the History of Ideas?' Jour.Hist.Ideas, 1990, 51: 3-25.

20. Michael Clark, 'The Rejection of Psychological Approaches to Mental Disorder in Late Nineteenth-Century British Psychiatry,' in Madhouses, Mad-Doctors and Madmen, ed. by Scull, 271-312; Roger Cooter, 'Phrenology and British Alienists, ca. 1825-1845,' in ibid., 58-104; W.F. Bynum, Rationale for Therapy in British Psychiatry, 1780-1835,' in ibid., 35-57; idem, 'Varieties of Cartesian Experience in Early Nineteenth Century Neurophysiology,' in Philosophical Dimensions of the Neuro-Medical Sciences, eds. by S.F. Spicker and H.T. Engelhardt Jr. (Dordrecht: Reidel, 1976), 15-33; Roger Smith, 'The Background of Physiological Psychology in Natural Philosophy,' Hist.Sci., 1973, 11: 75-123; German Berrios, 'The Psychopathology of Affectivity: Conceptual and Historical Aspects,' Psychological Medicine, 1985, 15: 745-58. For a more comprehensive list of the works by them, see note 35 of Porter, 'History

the intellectual history of eighteenth-century psychiatry has been very much understudied: with the exception of Foucault's astute analysis presented in the second part of Histoire de la folie and Porter's rich narrative in his Mind-forg'd Manacles, we do not possess any large-scale attempt to capture the intellectual aspects of psychiatry in the eighteenth century.[21] Reactions to Foucault's Histoire de la folie epitomize the lack of interest in the intellectual aspects among historians of psychiatry: although many historians have adopted, questioned, modified, and denied Foucault's thesis of the 'great confinement' put forth in the first and social historical part of the book, almost none has discussed the intellectual historical issues raised in the second part of the same book.[22]

I am far from taking a reactionary stance and arguing that psychiatry consisted solely in intellectually formulated theory, and that the intellectual aspects should be the only concern of historians of psychiatry. The general historiographical trend from psychiatry (and medicine in general) as purely intellectual activity to socially, culturally, and

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of Psychiatry in Britain.'

21. Foucault, Histoire de la folie, pp.181-360; Porter, Mind-forg'd Manacles, esp., pp.169-228. John P. Wright has recently started to research into the area. See John P. Wright, 'Association, Madness, and the Measures of Probability in Locke and Hume,' in Psychology and Literature in the Eighteenth Century, ed. by Fox, 103-27; idem, 'Boerhaave on Minds, Human Beings, and Mental Diseases,' Studies in Eighteenth-Century Culture, 1990, **20**: 289-302. See also valuable exceptions like W.F. Bynum, 'The Anatomical Method, Natural Theology, and the Functions of the Brain,' Isis, 1973, **64**: 445-69; Thomas Harmon Jobe, 'Medical Theories of Melancholia in the Seventeenth and Early Eighteenth Centuries,' Clio Medica, 1976, **11**: 217-31.

22. As for criticism of the 'great confinement' thesis, see chapter one below. The French original of Foucault's Histoire has a tripartite structure: in the first part the socio-ideological aspects of the 'great confinement' in the 'classical age' is discussed; in the second, medical, scientific, intellectual, philosophical and metaphysical aspects of the psychiatry then is discussed; in the third, as if in the manner of the Hegelian dialectic, nineteenth-century synthesis of the institutional and intellectual issues are discussed. The second part has enjoyed the least attention both from favourable and critical points of view.

ideologically constructed fabric is very much welcome. I am just saying that it seems a simple truth that we need good historical studies based on analysis and contextualization of the intellectual aspects of eighteenth-century psychiatry in order to achieve full understanding of its matrix, and that we still do not possess one. The major aim of this thesis is to fill this lacuna of present historiography of eighteenth-century British psychiatry by examining its intellectual aspects, and to contribute to the domain pioneered by Foucault and Porter by developing their seminal suggestions, criticizing them when necessary, and looking at aspects which have escaped their attention.

Among many intellectual issues involved in eighteenth-century psychiatry, I will principally look at the medical/scientific aspects and philosophical/metaphysical ones. As for medical/scientific issues, no justification is needed for looking at them. As a part of the systematic medical and natural philosophical knowledge at that time, it is understandable that the pathology of madness made shifts in accordance with major changes in basic schemes of medical systems. This was the more the case during the eighteenth century, because there hardly existed independent psychiatric discipline with its own problems and theoretical framework. Rather, much of the medical discourse on madness during the century was a part of medico-theoretical 'story telling.' Starting from basic tenets, medical system-builders applied them to their account of madness to demonstrate the usefulness and truth of their systems. Their students adopted the same tactics, to show their mastery of the mentors' systems and to fashion themselves as learned and competent physicians endowed with systematic knowledge.[23]

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23. Although outdated, the fullest account of eighteenth-century medicine remains Lester King, The Medical World of the Eighteenth Century (Chicago: The University of Chicago Press, 1958). See also the recent revisions of much of King's work in W.F. Bynum, 'Health, Disease and Medical Care,' in The Ferment of Knowledge, eds. by G.S. Rousseau and Roy Porter (Cambridge: Cambridge U.P., 1980), 211-53; Guenter B. Risse, 'Medicine in the Age of Enlightenment,' in Medicine in Society, ed. by

Caution is necessary here. Although this thesis is primarily concerned with British psychiatric writings, it is not sufficient merely to study Britain, for medical learning and education was an international business in the eighteenth century. As well as British major medical figures such as Thomas Willis, Archibald Pitcairn, and William Cullen, some major Continental medical theorists such as Herman Boerhaave, Albrecht von Haller, and Boissier de Sauvages exercised influence on general medical writings in Britian, and, consequently, on the accounts of madness included there. The works of the Continental medical professors were read, translated, and cited; their schemes and basic notions were adopted, incorporated, developed, and sometimes criticized. Many British students crossed the Channel to study medicine on the Continent (especially at Leiden), partly because Oxford and Cambridge kept their doors closed to Dissenters and provided medical students only with costly, prolonged, and somewhat inferior education.[24] Accordingly, medical accounts of madness by British writers included the key notions of the Continental as well as British medical professors.

As for philosophical/metaphysical issues, some explanation is needed. Since madness was largely understood in the eighteenth century as a disease of the mind, medical accounts of madness included the dimension of the philosophy of the mind and/or the metaphysics of the soul. Indeed, this interplay of medicine and the philosophy of the

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Wear, 149-95.

24. As for Boerhaave's influence on Britain, see G.A. Lindeboom ed., Boerhaave and Great Britain (Leiden: E.J. Brill, 1974); E. Ashworth Underwood, Boerhaave's Men: at Leiden and After (Edinburgh: Edinburgh U.P., 1977); Andrew Cunningham, 'Medicine to Calm the Mind: Boerhaave's Medical System and Why It Was Adopted in Edinburgh,' in The Medical Enlightenment of the Eighteenth Century, eds. by Andrew Cunningham and Roger French (Cambridge: Cambridge U.P., 1990), 40-66. As for medicine at Oxford and Cambridge in the eighteenth century, see Charles Webster, 'The Medical Faculty and the Physic Garden,' in The History of the University of Oxford, vol.5, ed. by L.S. Sutherland and L.G. Mitchel (Oxford: Clarendon Press, 1986), 683-723; Arthur Rook, 'Medicine at Cambridge 1660-1760,' Med.Hist., 1969, 13: 107-22.

mind/soul was not limited to the psychiatric sector of medical discourse. Problems of the mind/soul were also one of the major concerns expressed in general medical systems of that time.[25] Since almost all major medical theorists (with a handful of exceptions of the notorious materialists like La Mettrie) believed in the doctrine that man has two distinctive aspects, i.e., the body and the soul, medical science as the study of the health and disease of man encompassed the discourse on the soul/mind. Although many eighteenth-century medical writers expressed a visible desire to avoid being over-involved into philosophical and metaphysical problems related to the mind/soul, still they talked about the problems and incorporated a certain amount of the philosophy and metaphysics of the mind/soul. It is hence not surprising that psychiatric discourse, which had a special connection with the mind/soul, included philosophical and metaphysical dimensions.

Among philosophical and metaphysical problems in the eighteenth century, three intertwined issues were of special importance to psychiatric discourse at that time. First, the problem of the immortality of the soul was an enormous concern for medical theorists in the eighteenth century. Hence it played an important role to formulate their accounts of madness. Having become a built-in part of philosophy during the sixteenth and seventeenth centuries, the problem of the immortality was still an essential concern of metaphysics in the eighteenth century.[26] Metaphysicians (and

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25. Study of the problems of the soul in eighteenth-century medicine include: Roger K. French, 'Sauvages, Whytt and the Motion of the Heart: Aspects of Eighteenth Century Animism,' Clio Medica, 1972, 7: 35-54; idem, 'Sickness and the Soul: Stahl, Hoffmann and Sauvages on Pathology,' in The Medical Enlightenment of the Eighteenth Century, eds. by Cunningham and French, 88-110; idem, Robert Whytt, the Soul, and Medicine (London: The Wellcome Historical Medical Library, 1969).

26. As for the Renaissance period, see papers in P.O. Kristeller, Renaissance Concepts of Man and Other Essays (New York: Harper & Row, 1972). Seventeenth-century notions of the immortality are discussed in Emily Michael & Fred S. Michael, 'Two Early Modern Concepts of Mind: Reflecting Substance vs. Thinking Substance,' Jour.Hist.Phil., 1989, 27: 29-48. We do not have a survey of the idea in the eighteenth century.

physicians) were the more eager to prove the immortality of the soul, because the doctrine of immortality was regarded as an ideological prop of morality: no life after the death of the body meant no fear of punishment after death, hence no respect for moral. Although eighteenth-century moral philosophy became based less on the fear of the punishment of the soul after death, many critics of mortalists' and materialists' schemes were worried about the effect of the materialistic doctrine on people's moral.

Reflecting these metaphysical and ideological concerns, physicians were keen to reinforce the doctrine of immortality in their medical publications, and in particular when they talked about mental diseases. This was even more the case, because the instance of madness was employed by some materialists as an evidence against the immortality of the soul: they interpreted madness as an injury in the soul, and from the observation deducted its corruptibility, and hence mortality.[27] During the seventeenth and eighteenth centuries, physicians kept trying to construct the medical account of madness that could go with the doctrine of the immortality of the soul, refuting the materialists' interpretation of madness.

Secondly, there existed the problem of dualism. Since the seventeenth century, keen concern for the issue of the immortality led many philosophers to make a sharp distinction between two things in man, i.e., the immortal and incorporeal soul and the perishable and material body. They disagreed with each other over many problems related with dualism, e.g. how the two things could interact, what were the attributes of the two things, where the body ended and the soul started, whether there was the third intermediate thing, or even whether there were two

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Some useful discussion is found in John Yolton, Thinking Matter: Materialism in Eighteenth Century Britain (Oxford: Blackwell, 1983).

27. The materialist polemic based on the instance of madness was, to my knowledge, used first in Lucretius, De Rerum Natura Libri Sex, 3 vols., ed. and trans. by Cyril Bailey (Oxford: Clarendon Press, 1947), vol.1, pp.325-29.

things at all. Philosophical disputes over such issues continued well into the eighteenth century, with different authors and shifts of foci. Eighteenth-century medicine, as well as medicine in the seventeenth century was involved in the problems, incorporating many issues related with dualism into their account of the soul, the body, their interaction, and madness.[28]

Thirdly, one can detect both positive and negative influence of the philosophy of John Locke on eighteenth-century medical and psychiatric writings.[29] Locke's visible impact on the psychiatric discourse in the earlier half of the century was almost nil. Indeed, some medical writers on human mind and its disorders at that time were overtly anti-Lockean and embraced fundamentally different approaches to the problem from that of Locke's own. The situation, however, changed drastically from the 1760s, and physicians in the late eighteenth century talked about normal and abnormal mental operations in the language of Locke (and of some other philosophers such as Hume). This late-century introduction of Locke's language into the medical consideration of the mind and its diseases was one of the most important breakthroughs during the century, and the pattern established there seems to have been inherited by early nineteenth-century psychiatry. Close examination of the structure of the Lockean coup in medical and psychiatric discourse will be of much help to understand continuities and changes in the matrices of psychiatry in the eighteenth and nineteenth centuries.

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28. As for eighteenth-century medicine and dualism, see John Wright, 'Metaphysics and Physiology: Mind, Body, and the Animal Economy in Eighteenth-Century Scotland,' in Studies in the Philosophy of the Scottish Enlightenment, ed. by M.A. Stewart (Oxford: Clarendon Press, 1990), 251-301.

29. Locke's influence on psychiatry in the eighteenth century has been discussed in Klaus Doerner, Madman and the Bourgeoisie: a Social History of Insanity and Psychiatry (Oxford: Basil Blackwell, 1981), pp.23-4; Porter, Mind-forg'd Manacles, pp.188-93.

These philosophical and metaphysical factors, together with the medical and natural philosophical issues, constituted a very complex structure of distinctive patterns of psychiatric discourse. Impetuses of shifts in the formulations of psychiatric discourse, therefore, largely came from outside the psychiatric sector of medical discourse. Psychiatry in the eighteenth century were not a self-contained domain with only internal changes contributing to its changes, let alone a monotonous monolith, but a fluctuating discursive space open to many factors outside the domain. In the course of this thesis, I will show that eighteenth-century psychiatry was, so to speak, a fluid and fast-changing mosaic which consisted of many extra-psychiatric factors.

Chronology of the chapters

Accordingly this thesis will not deal with a single and monolithic eighteenth-century psychiatry, nor with a single continuous linear development of a self-contained discursive sector. Instead, I will try to capture plural, heterogeneous and distinctive patterns of psychiatric discourse, which replaced one another and/or existed conterminously, and examine diverse and distinctive constructions of psychiatric discourse and diverse approaches to the problem of madness at that time. Although there existed conterminous different approaches, I will, for convenience's sake, follow the chronological order and will start from the Oxford medicine during the Restoration period and end at Cullen's Edinburgh around the 1770s.

Following Roy Porter's 'long eighteenth century' and Michel Foucault's 'l'âge classique,' the first chapter will look at the third quarter of the seventeenth century. In England, the period represented a transition from the Galenic-Aristotelian system to the mechanical medicine. The major, though not sole, foreign influence in the period seems to have come from Descartes, who propagated the most thorough mechanization of the understanding of the human body. Moreover,

Descartes provided the philosophical and medical world of the mid-seventeenth century with the most radical version of mind-body dualism. Taking Thomas Willis and Walter Charleton, who were both active at the Restoration Oxford, as the site to examine the influence of the mechanical philosophy and dualism, I will start this chapter with the assessment of the influence of the Cartesian dualism on the Oxford medicine. I will then proceed to assess continuities and changes in the medical schemes for understanding madness during the seventeenth century, comparing Willis' chemical and mechanical medicine with the medicine before Descartes.

After the dissolution of the Oxford school, a very idiosyncratic medical group led by Archibald Pitcairn arrived at the British medical scene around the turn of the century. Chapter two will examine the group. The members of the group proposed a sweeping and radical reform in medicine, claiming medicine should be modelled after Newtonian mathematics. Influenced by the scientific methodology which was prevalent in England at that time, they tried to achieve mathematical certainty in medicine. One of the ways for them to achieve this aim was to eliminate problems of the soul/mind from the scope of medicine and to construct a medical system which terminated in the body. Accordingly, their understanding of madness was very peculiar: in a word, they were trying to do psychiatry without any issues related to soul/mind. Their bold attempt to construct the unique psychiatric scheme will be examined in the second chapter.

After the rather quick decline of the iatro-mathematical school, the new mental disturbances of hysteria and hypochondria became a very much fashionable topic from around the 1730s. Chapter three will discuss the intellectual, social and ideological environment of the fashion. In that chapter I will lay more emphasis on socio-ideological aspects of medical discourse, and contextualize the medical discourse on the new mental diseases into the broader issue of the English Enlightenment. The topics I will look at will be: instructing lay audience into believing the bodily causation of mental diseases; the coming of the consumer society; the

environmental, social and political understanding of mental and bodily health. It seems that one cannot grasp the nuance of the early Georgian medical discourse on hysteria and hypochondria without taking those issues into consideration.

Chapter four will deal with a highly philosophical topic: the problem of Lockeanism and anti-Lockeanism in psychiatric discourse around the mid century. The starting point is that Locke's Essay exercised surprisingly little influence on psychiatric discourse during the earlier half of the century. Substantial and significant medical incorporation of the Lockean analysis of normal and abnormal mental operations had not appeared until David Hartley's Observations on Man (1749). Indeed, Locke's theory of the mind was not only ignored by also quite often refuted by early-eighteenth medical writers. In the chapter I will examine why Locke had been long absent and was treated unfavorably in the earlier half of the century. Then I will discuss Hartley's breakthrough and his construction of a new grid for understanding the mind and its diseases.

Chapter five will look closely at the dispute between William Battie and John Monro in 1758. There needs little justification for looking at the dispute, as Battie has often been regarded as a sort of the father of British psychiatry. In the chapter, I will examine two neglected aspects of the dispute, namely the context of the innovations in mid-century physiology and the influence of eighteenth-century epistemology upon medical understanding of man's perception of the external world. I will argue that the key impetus of Battie's work came from Albrecht von Haller's famous experiments on the sensibility of animals. I will then proceed to examine the epistemological undercurrent of the dispute, relating the dispute and some other medical and philosophical works with the Lockean distinction of sensation and perception, epitomized in 'Molyneux's question.'

The last and sixth chapter will deal with new medical approaches to madness formulated in the 1760s and 70s. The new approaches encompassed two closely intertwined important factors: the use of nosology and the full employment of philosophical language to describe human

mind and its diseases. The Continental site I will look at is Boissier de Sauvages, the major proponent of nosology. There I will show how the technique of nosology and the heavy use of the philosophy of Christian Wolff transformed Sauvages' psychiatric discourse. I will then examine somewhat parallel shifts in William Cullen's works and consider the influence of David Hume's philosophy on Cullen's new pattern of discourse to describe the human mind and its diseases. I will relate Cullen's attempt with the intellectual milieu of the Scottish Enlightenment. A tentative assessment of the relation between Cullen's works and specialized psychiatric works at the turn of the century will conclude the chapter.

Chapter One

Seventeenth-Century Background: Continuity and Change

Introduction

a) Intellectual and medical world turned upside down

Following Roy Porter's 'long eighteenth century' and Michel Foucault's 'l'âge classique,' the 1650s seem to be the place to start this thesis. In England at that time, not only the political but also the intellectual world was being turned upside down. Almost ubiquitous challenges against authorities--church, crown, masters--were embodied into new or revived intellectual alternatives: radical religious sects, republicanism, and communism were mushrooming around 1650.[1] This was also the case within the domain of natural philosophy, where the 'Scientific Revolution' was maturing.[2] The subtle Aristotelian system of logic, physics and metaphysics, which had been the backbone of Scholasticism, was vehemently criticized or even despised as a fanciful and meaningless babble. 'The Philosopher' was dethroned, and new intellectual pretenders and their devotees arrived on the English intellectual scene--Paracelsus (c1493-1541), Francis Bacon (1561-1626), and René Descartes (1596-1650), to name only a few. Bacon's 'Great Instauration' and attack against the idola theatri of Aristotelianism found a host of English supporters.[3] Descartes' works, some of which became

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1. Christopher Hill, The World Turned Upside Down (Harmondsworth: Penguin, 1978).

2. The literature on the Scientific Revolution is vast. For an up-to-date assessment of it, see Reappraisals of the Scientific Revolution, eds. by David C. Lindberg and Robert S. Westman (Cambridge: Cambridge U.P., 1990).

3. For English proponents of Baconian reform of science before the establishment of the Royal Society, see Charles Webster, The Great Instauration: Science, Medicine and Reform 1626-1660 (London:

available in English in 1650s, were eagerly read, digested, and sometimes criticized by Kenelm Digby (1603-65), Henry More (1614-87), Robert Boyle (1627-92), Thomas Hobbes (1588-1679), and others. 'The mechanization of the world picture' was on its way in England.[4] The mechanical world views and rational Enlightenment fought not only with the Aristotelians but also with the Paracelsian natural philosophy, often amalgamated with mystical, occult, magical, alchemical, Hermetic, kabbalistic, Neoplatonic, Rosicrucian traditions.[5] In disputes between the new mechanical establishment and the mystical challenge--such as those between Marin Mersenne (1588-1648) and Robert Fludd (1574-1637); Henry More and Thomas Vaughan (1622-66); Seth Ward (1617-89) and John Wilkins (1614-72)) and John Webster (1610-82)--, political, religious and ideological issues as well as intellectual ones were at stake.[6]

Duckworth, 1975). The studies on the Royal Society has been summarized with helpful bibliography, in Michael Hunter, Science and Society in Restoration England (Cambridge: Cambridge U.P., 1981). One recent stimulating account of the Restoration science is Steven Shapin and Simon Schaffer, Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life (Princeton: Princeton U.P., 1985).

4. Marjorie Nicolson, 'The Early Stages of Cartesianism in England,' Studies in Philology, 1929, **26**: 356-74; S.P. Lamprecht, 'The Role of Descartes in Seventeenth Century England,' Studies in the History of Ideas (New York, 1935), 181-240; G.A.J. Rogers, 'Descartes and the English,' in The Light and Nature: Essays in the History and Philosophy of Science Presented to A.C. Crombie, eds. by J.D. North and J.J. Roche (Dordrecht: Matinus Nijhoff, 1985), 281-302. E.J. Dijksterhuis, The Mechanization of the World Picture, trans. by C. Dikshoorn (Oxford: Clarendon Press, 1961; rept. Princeton: Princeton U.P., 1986), see especially pp.403-91.

5. For a recent examination of the problem of the magic and science during the Scientific Revolution, see papers in Occult and Scientific Mentalities in the Renaissance, ed. by Brian Vickers (Cambridge: Cambridge U.P., 1984).

6. Studies of the confrontations of magical and rational world views include: Noel L. Brann, 'The Conflict between Reason and Magic in Seventeenth-Century England: a Case Study of the Vaughan-More Debate,' Huntington Library Quarterly, 1980, **43**: 103-26; Frederic B. Burnham, 'The More-Vaughan Controversy: the Revolt against

Medicine was a vital part of this intellectual upheaval. A number of attempts were made to replace old models with new ones, in both practical and theoretical aspects of medicine, i.e., medicine as healing art and medicine as natural philosophy.[7] As for practice, there emerged a new notion of cure. Rather than a long course of therapeutic regimen whose end was to restore the nature of the patient, particular drugs provided by apothecaries aimed at quick recovery from particular diseases.[8] Medical consumers welcomed the shift toward less costly and less time-consuming cures, and many élite London physicians during the Restoration found themselves on the losing side of the competition with the apothecaries.[9]

Medical theory as a part of natural philosophy went through a modification similar to the shift which took place in natural philosophy in general. Galenism went into a decline similar to that of Aristotelian natural philosophy.[10] Baconian experimental method was applied to the

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Philosophical Enthusiasm,' Jour.Hist.Ideas, 1974, 35: 33-49; Thomas Harmon Jobe, 'The Devil in Restoration Science: the Glanvill-Webster Witchcraft Debate,' Isis, 1981, 72: 343-56; Irving Kirsch, 'Demonology and Science during the Scientific Revolution,' Jour.Hist.Behav.Sci., 1980, 16: 359-68.

7. See papers collected in Roger French and Andrew Wear eds., The Medical Revolution of the Seventeenth Century (Cambridge: Cambridge U.P., 1989); Allen G. Debus ed., Medicine in Seventeenth-Century England: a Symposium Held at UCLA in Honor of C.D. O'Malley (Berkeley: University of California Press, 1974).

8. See the perceptive account in Harold J. Cook, 'The New Philosophy and Medicine in Seventeenth-Century England,' in Reappraisals of the Scientific Revolution, eds. by Lindberg and Westman, 397-436.

9. Theodore M. Brown, 'The College of Physicians and the Acceptance of Iatromechanism in England, 1665-1695,' Bull.Hist.Med., 1970, 44: 12-30; Harold Cook, The Decline of the Old Medical Regime in Stuart London (Ithaca: Cornell U.P., 1986). See also the works of Rattansi and Webster cited in below note 13.

10. Lester King, 'The Transformation of Galenism,' in Medicine in Seventeenth-Century England, ed. by Debus, 7-31. Walter Pagel has

study of the working of the human and animal body. Instead of the bookish study of the Classical texts, medical inquiry examined 'the book of Nature,' through observation, dissection and animal vivisection, a process best exemplified in the animal experiments conducted at the early Royal Society.[11] The new corpuscular and mechanical philosophies of Descartes and Pierre Gassendi (1592-1655) were very quickly incorporated into physiological and pathological works from 1650s, especially in Oxford and the Royal College of Physicians in London.[12] Paracelsian anti-rational, mystical, alchemical and animistic natural philosophy was vigorously incorporated or reproduced by many English writers on medicine during the Interregnum and Restoration.[13]

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shown, however, that a substantial part of seventeenth-century 'revolutions' in medical theory, like Harvey's circulation and Glisson's irritability, took place within the framework of Aristotelianism. See Walter Pagel, 'Harvey and Glisson on Irritability with a Note on van Helmont,' Bull.Hist.Med., 1967, **41**: 497-514; idem, 'The Reaction to Aristotle in Seventeenth-Century Biological Thought,' in Science, Medicine and History: Essays on the Evolution of Scientific Thought and Medical Practice, ed. by E. Ashworth Underwood, 2 vols. (London: Oxford U.P., 1953), vol.1, 489-509.

11. For the Baconianism in English medicine in this period, See Webster, The Great Instauration. For medicine and animal experiments at the Royal Society, see A. Rupert Hall, 'Medicine and the Royal Society,' in Medicine in Seventeenth-Century England, ed. by Debus, 421-52.

12. For Descartes's influence, see Theodore M. Brown, 'Physiology and the Mechanical Philosophy in Mid-Seventeenth-Century England,' Bull.Hist.Med., 1977, **51**: 25-74. A detailed and excellent account of Oxford medical theories is given in Robert G. Frank, Harvey and the Oxford Physiologists, (Berkeley: Univ. of California Press, 1980). A socio-political account of the Royal College's adoption of the mechanical philosophy in the Restoration was given in Brown, 'The College of Physicians and the Acceptance of Iatromechanism.'

13. Charles Webster, 'English Medical Reformers of the Puritan Revolution: a Background to the "Society of Chymical Physicians,"' Ambix, 1967, **14**: 16-41; P.M. Rattansi, 'The Helmontian-Galenist Controversy in Restoration England,' Ambix, 1964, **12**: 1-23; idem, 'Paracelsus and the Puritan Revolution,' Ambix, 1963, **11**: 23-32.

b) Historiography of seventeenth-century madness

What happened, then, to the understanding and treatment of madness during this period of revolution?

At one extreme, there is Gregory Zilboorg's scenario of 'the first psychiatric revolution,' a scientific and humanistic breakthrough against the bad old days. Zilboorg's 'revolution' consisted in criticisms of the belief in witchcraft and demonic possession. Heroes like Johann Weyer (1515-88) in Germany and Reginald Scot (1538?-99) and Edward Jorden (1569-1632) in England fought against the demonologists like Jean Bodin (1530-96) and King James I (1566-1625) to rescue alleged witches and demoniacs.[14] It seems that few historian of science, medicine and psychiatry today accept Zilboorg in toto. Recent study has shown that the background of some denials of the reality of witchcraft may be best described as magical, rather than scientific.[15] Moreover, the debates over witches and demoniacs are now increasingly seen more as a part of early modern religious, political and ideological polemics: Protestant versus Catholic over the problem of miracles (Scot); Anglican attack against the Puritan and Catholic propaganda (Jorden); spreading the idea of absolute monarchy protecting true religion (King James I); combatting against the modern Sadducees (Joseph Glanvill and More).[16]

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14. The originator of the myth of 'The First Psychiatric Revolution' was Gregory Zilboorg, A History of Medical Psychology (New York: W.W. Norton & Co., 1941), pp.175-224. The myth was adopted by E.H. Ackerknecht, A Short History of Psychiatry, 2nd ed., trans. by Sula Wolff (New York: Hafner, 1968), in an uncritical manner, rather uncharacteristic for the author. See also Hunter and MacAlpine, Three Hundred Years of Psychiatry, pp.32-35 and 68-75.

15. Christopher Baxter, 'Unsystematic Psychopathology: Johann Weyer's De Praestigiis Daemonum' in The Damned Art, ed. by Sydney Anglo (London: Routledge & Kegan Paul, 1977), 53-75; Jobe, 'Devil in Restoration Science.'

16. See papers in Sidney Anglo ed., The Damned Art. See also idem, 'Melancholia and Witchcraft: the Debate between Weyer, Bodin, and

On the other hand, we have another account of the shift in the period, which says that the shift consisted in the de-mystification of madness and its transfiguration into an object of control. The most powerful proponent of the view has been Michel Foucault.[17] Foucault argued the beginning of the 'Classical Age' was marked by the decline of the Medieval and Renaissance association of madness with otherworldliness, divine wisdom, and the power to arouse transcendental fear. Deprived of its mystical, religious, theological and metaphysical symbolism, madness became an object of this-worldly understanding, handling and treatment. Following this secularization, Foucault maintained, there took place in mid-seventeenth-century France, England, and Germany, the massive confinement of the mad into those institutions which were built essentially to punish the immoral delinquent, such as criminals, vagrants, sodomites, and the idle. People started understanding madness with respect to the breach of the bourgeois work ethic and in the context of the system of punishment and policing.

It is now agreed that seventeenth-century England experienced neither the confinement of lunatics into penal institutions nor the identification of them with the immoral in as large a scale as Foucault

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Scott,' in Folie et déraison à la Renaissance, ed. by A. Gerlo (Bruxelles: Editions de l'Université de Bruxelles, 1976), 209-28; Stuart Clark, 'Inversion, Misrule and the Meaning of Witchcraft,' Past and Present, 1980, 87: 98-127; idem, 'The Scientific Status of Demonology,' in Occult and Scientific Mentalities in the Renaissance, 351-74; Michael MacDonald ed., Witchcraft and Hysteria in Elizabethan London: Edward Jorden and the Mary Glover Case (London: Tavistock/Routledge, 1991), 'Introduction' by MacDonald; Jobe, 'The Devil in Restoration Science'; David Harley, 'Mental Illness, Magical Medicine and the Devil in Northern England, 1650-1700,' in The Medical Revolution of the Seventeenth Century, eds. by French and Wear, 114-44.

17. Michel Foucault, Histoire de la folie à l'âge classique, 2nd ed. (Paris: Éditions Gallimard, 1972).

would have us believe.[18] It does seem, however, that Foucault's claim of the secularization of madness has found support. The Pauline idea of the good Christian fool, which elevated madness even to the state of Christ himself, found less appeal as the seventeenth century went on, and Christianity became more reasonable and less mysterious.[19] The court jesters vanished during the century and the 'fools' who had once spoken the ambivalent language of both Tom o'Bedlam and the wise philosopher disappeared.[20] The élite establishment was increasingly disturbed at the mystical, anti-rational and often politically radical religious sects which regarded inspired vision as a vital part of its religious experience: they were labelled 'enthusiasts,' their claim to holiness being degraded into a simple delusion of stark madness.[21] As Michael MacDonald argues, Richard Napier's (1559-1634) and Robert Burton's (1577-1640) early- and mid-seventeenth-century hybrid of magical, astrological, religious, popular

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18. Roy Porter, Mind-forg'd Manacles: a History of Madness in England from the Restoration to the Regency (London: The Athlone Press, 1987); H.C.E. Midelfort, 'Madness and Civilization in Early Modern Europe,' in After the Reformation: Essays in Honor of J.H. Hexter, ed. by Barbara Malamount (Philadelphia: University of Pennsylvania Press, 1980), 247-65; Akihito Suzuki, 'Lunacy in Seventeenth- and Eighteenth-Century England: Analysis of Quarter Sessions Records,' parts I & II, History of Psychiatry, 1991, **2**: 437-56, & 1992, **3**: 29-44.

19. Michael A. Screech, 'Good madness in Christendom,' in The Anatomy of Madness: Essays in the History of Psychiatry, 3 vols, eds. by W.F. Bynum et al. (London: Tavistock, 1985-88), vol.1, 25-39; Hill, The World Turned Upside Down, pp.277-286; Gerald R. Cragg, The Church and the Age of Reason (Harmondsworth: Penguin, 1960).

20. E. Welsford, The Fool: His Social and Literary History (London: Faber, 1935); Sandra Billington, The Social History of the Fool (Brighton: Harvester Press, 1984).

21. Michael Heyd, 'The Reaction to Enthusiasm in the Seventeenth Century: towards an Integrative Approach,' Journal of Modern History, 1981, **53**: 258-80, includes a good assessment of the studies on the topic.

and psychological medicine of madness were giving way to more rational, élite and somatic medicine.[22]

c) Problems: mechanical medicine and the mind/body dualism

Despite all those studies on the religious, cultural, and ideological aspects of madness in the seventeenth century, there is no detailed account of the technical concepts and theories about madness held by doctors in this period.[23] Given the great intellectual upheaval of the Scientific Revolution and especially the coming of mechanical medicine, there is good reason to ask whether the Scientific Revolution and the mechanization of understandings of man (best exemplified by Descartes) included any revolution in psychiatry, or whether it was simply the problem of changing the old language of humours into the new one of particles and mechanism,--as Roy Porter puts it 'pouring old wine into new linguistic bottles.'[24]

The seventeenth century witnessed not only the new mechanical understanding of the body, but also the new philosophical formulation of the soul/mind and its relation to the body. The most prominent--or notorious--proponent of this new philosophical formulation was again Descartes. The impact of Cartesian dualism on psychiatry and medical understanding of the mind has been argued to be immense. Contrast has

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22. Michael MacDonald, Mystical Bedlam: Madness, Anxiety, and Healing in Seventeenth-Century England (Cambridge: Cambridge U.P., 1981), pp.171-231; idem, 'Religion, Social Change, and Psychological Healing in England, 1600-1800,' in The Church and Healing, ed. by W.J. Sheils (Oxford: Basil Blackwell, 1982), 101-25.

23. See, however, some valuable exceptions like Thomas Harmon Jobe, 'Medical Theories of Melancholia in the Seventeenth and Early Eighteenth Centuries,' Clio Medica, 1976, 11: 217-31; Stanley Jackson, Melancholia and Depression: from Hippocratic Times to Modern Times (New Haven: Yale U.P., 1986), chapter 6.

24. Porter, Mind-forg'd Manacles, p.47.

been assumed between pre-Cartesian and post-Cartesian medical understandings of the body/soul issues: C.E. McMahon wrote that 'In pre-Cartesian era, medicine was invariably holistic and psychosomatic. In the post-Cartesian, dualistic era, mechanistic physiopathology gained ascendancy, and psychophysiological events were forbidden on logical ground.'[25] This statement has not been examined at all, however. Moreover, one has to be careful not to oversimplify the relationship between dualism and psychiatry, not least because Descartes was not an isolated figure in his attempt to separate the mind/soul and the body. As Emily and Fred Michael have shown, many philosophical writers before Descartes put enormous amounts of intellectual energy into attempts to prove the immortality of the soul, due to religious turmoil and to the Church's encouragement particularly in the eighth session of Pope Leo X's Lateran Council of 1513 to combat the Averroistic view of the mortality of the soul.[26] Many physicians before Descartes were therefore already well aware of the mortalist and materialist threat on the Christian religion, were incorporating the defence of the immortality in their works, and were producing rigorously dualistic medical account of madness, as I will show below.

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25. C.E. McMahon, 'The Role of Imagination in the Disease Process: Pre-Cartesian History,' Psychological Medicine, 1976, **6**: 179-84, esp., 184. For a perceptive criticism of McMahon's view, see Theodore M. Brown, 'Descartes, Dualism, and Psychosomatic Medicine,' in The Anatomy of Madness, eds. by Bynum et al., vol.1, 40-62, esp., 50.

26. Emily Michael and Fred S. Michael, 'Two Early Modern Concepts of Mind: Reflecting Substance vs. Thinking Substance,' Jour.Hist.Phil., 1989, **27**: 29-48; idem, 'Corporeal Ideas in Seventeenth-Century Psychology,' Jour.Hist.Ideas, 1989, **50**: 31-48. The averroistic mortalism found its most powerful expression in Pietro Pomponazzi's De Immortalitate Animae (1516), an English translation of which is available with introduction by J.H. Randall, in Ernst Cassirer et al., eds. The Renaissance Philosophy of Man (Chicago: The University of Chicago Press, 1948), pp.257-393. In his Meditations on First Philosophy, Descartes explicitly wrote that his aim is to support the eighth session of the Lateran Council. René Descartes, The Philosophical Writings of Descartes, 3 vols., eds. by John Cottingham et al. (Cambridge: Cambridge U.P., 1984-1991), vol.2, p.4.

The broadest question of this chapter asks: what did Descartes do in the history of psychiatry? To answer the question in a comprehensive manner would be a task of another entire thesis. I will be therefore highly selective and will look principally at two seemingly promising sites: first Descartes himself, and secondly the ideas about madness expressed in the mechanical medicine at Oxford from about 1650 to 1670, especially in the works by Thomas Willis (1621-75).[27] In the first section, I will examine the Oxford physicians' response to Descartes' dualism. In that section I will show that the Restoration Oxford produced two major proponents of anti-Cartesian medical formulation of the problem, namely Willis and Walter Charleton (1619-1707).

In the second section, I will look at Willis' view of madness in the longer-term and broader fabric of the shift from humoral medicine to mechanical one, from the late sixteenth century to the late seventeenth century, adopting a provisional framework of 'before and after,' for convenience's sake. There I will compare the earlier medical writings on madness, mainly those of Timothy Bright (1551?-1615), André du Laurens (1558-1609), and Robert Burton, with Willis's works on mental disease, and show that the earlier and the later medical discourses on madness shared many basic assumptions.[28] Especially, I would like to argue that medical understanding of madness was rigorously dualistic both before and after Descartes.

Descartes, however, did introduce a drastic change, which will be discussed in the third section. Descartes established an anti-Aristotelian and mechanical account of human perception of external things. And there Descartes forged an innovative model of madness as illusion, to

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27. Other seemingly promising sites like Paracelsian philosophy and medicine, natural philosophy and medicine at Cambridge and the Royal Society have been not consulted in detail.

28. In making comparison between Neo-classical and mechanical formulations of madness, I am not going to present a full picture of the former with its own intellectual complexity. Rather, I will try to give a broadest picture of what I think the most basic issues there.

support his explanation of the process of our having the idea of an external thing. The new Cartesian model of madness, coupled with his epistemology, found its way to medical discourse and transformed the fundamental scheme for physicians to understand and to explain madness.

The non-Cartesian dualism at Oxford

a) Descartes's dualism and its English critics

One of Descartes' most profound impacts upon medicine in the seventeenth century was his rigorous ontological distinction between the soul, res cogitans, and the body, res extensa. In sharp contrast to the Galenic system of a tripartite soul controlling the living body, Descartes claimed that the sole role of the soul was thinking, in which no bodily processes were involved, and the soul had nothing to do with the natural and vital bodily processes such as nutrition and the circulation of blood. Separated from the psychic control, the changes and motions in the living body were in strict accordance only with mechanical laws. The working of the whole world other than the human soul (and angel and God) was a great machine in which only matter in motion was necessary, and the human body was no exception.[29] The nature of life and death was transformed accordingly from a problem of psyche to that of machine.

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29. René Descartes, Treatise of Man, trans. by Thomas S. Hall (Cambridge, Mass.: Harvard U.P., 1972), esp., p.113. See also Description of the Human Body and of All Its Functions, in idem, Philosophical Writings, vol.1, pp.314-24, esp. pp.314-16. As for Descartes' research programme into the human body, see Thomas S. Hall, 'Introduction' to Treatise of Man; idem, 'Descartes' Physiological Method: Position, Principles, Examples,' Jour.Hist.Bio., 1970, 3: 53-79; G.A. Lindeboom, Descartes and Medicine (Amsterdam: Rodopi N.V., 1978); Julian Jaynes, 'The Problem of Animate Motion in the Seventeenth Century,' Jour.Hist.Ideas, 1970, 31: 219-34; Phillip R. Sloan, 'Descartes, the Sceptics, and the Rejection of Vitalism in Seventeenth Century Physiology,' Stud.Hist.Phil.Sci. 1977, 8: 1-28.

The processes like life, death, nutrition and the circulation of the blood were purely mechanical and bodily phenomena; thinking, reasoning, and will were purely mental ones.[30]

Descartes, however, admitted another category of phenomena, i.e., those functions in which both the soul and the body were concerned. John Cottingham rightly suggested that although Descartes admitted only two substances, i.e. the body and the mind, he actually distinguished three modes of phenomena, i.e. purely somatic, purely mental, and the union of both.[31] In his Meditations Descartes said the faculties of sensation and imagination were 'special modes of thinking.' As he later explained to Frans Burman (1628-79), they were special because they involved both physiological processes of making images printed on the pineal gland, and the mental one of perceiving the images and forming ideas of them; whereas reasoning, like thinking about a thousand-sided figure, does not involve the process of image-making, hence is performed without the body.[32] Descartes' scheme may best be described as dualism in terms of substance and trialism in terms of mode of the operation of the substances. Descartes, however, could not explain the interaction, and to provide an explanation of the problem was left to post-Cartesian Continental philosophers like Malebranche (1638-1715) and Leibniz (1646-1716),

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30. As for life and death, Descartes, Description of the Human Body, in Philosophical Writings, vol.1, p.315.

31. John Cottingham, 'Cartesian Trialism,' Mind, 1985, **94**: 218-230; idem, Descartes (Oxford: Blackwell, 1986), pp.107-34.

32. Descartes, Philosophical Writings, vol.2, pp.54 & 51; idem, Descartes' Conversation with Burman, ed. and trans. with introduction and commentary by John Cottingham (Oxford: Clarendon Press, 1976), p.27. The difference between purely mental faculties and the 'hybrid' faculties of sensation and imagination is amply discussed in Cottingham, 'Cartesian Trialism.'

whose impact on the eighteenth-century medical metaphysics has recently been studied.[33]

Descartes' system was introduced into England rather quickly, but found a mixed reaction in the mid-century.[34] Thomas Hobbes and Henry More were probably the epitomes of English criticism of Descartes' dualism. Hobbes, who had already contributed extremely hostile objections to Descartes' Meditations in 1641, infuriated Interregnum Englishmen with an out-and-out mechanistic and materialistic system in Leviathan (1651), De Corpore (1655) and De Homine (1658). In these works, the thought that mental processes might be irreducible to corporeal ones never occurred to Hobbes, for he thought thinking was identical with the succession of corporeal images.[35] After his enthusiastic admiration of the French philosopher had faded, Henry More produced very different philosophical system from Descartes': for More, no substance existed without extension; God and angels, let alone the mind, were extended; the 'Spirit of Nature,' an activating spiritual but extended principle found no

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33. The issue of mind-body interaction in late-seventeenth-century Rationalists thought is nicely introduced in John Cottingham, The Rationalists (Oxford: Oxford U.P., 1988), pp.115-54. For its connection with medicine then, see John Yolton, Locke and French Materialism (Oxford: Clarendon Press, 1991), pp.10-37; L.W.B. Brockliss, 'The Medico-Religious Universe of an Early Eighteenth-Century Parisian Doctor: the Case of Philippe Hecquet,' in The Medical Revolution of the Seventeenth Century, eds. by French and Wear, 191-221; Johanna Geyer-Kordesch, 'Passions and the Ghost in the Machine: or What Not Ask about Science in Seventeenth- and Eighteenth-century Germany,' in ibid., 145-63.

34. See Nicolson, 'The Early Stage of Cartesianism'; Charles Webster, 'Henry Power's Experimental Philosophy,' Ambix, 1967, **14**: 150-78; Lamprecht, 'Role of Descartes'; Rogers, 'Descartes and the English'; Alan Gabbey, 'Philosophia Cartesiana Triumphata: Henry More (1646-1671),' in Problems of Cartesianism, eds. by Thomas M. Lennon, et al., (Kingston: McGill-Queen's U.P., 1982), 171-250, especially 195.

35. Tom Sorell, Hobbes (London: Routledge and Kegan Paul, 1986), p.75. For the criticisms against Hobbes, see Samuel I. Mintz, The Hunting of Leviathan (Cambridge: Cambridge U.P.,1962).

place in Descartes' system; More's animals were not automata, but had spiritual and immortal souls.[36]

b) Criticism against Cartesian dualism at Oxford

Critical assessment of Descartes' dualism also characterized many Oxford natural philosophers during the Interregnum and Restoration. The Oxford response to Descartes' dualism deserves closer examination because it involved a lot of medical and physiological ideas, best exemplified in the writings of Walter Charleton and Thomas Willis. Moreover, with all our detailed knowledge of their physiology excavated by Robert Frank, we do not yet have a complete study of their idea on the soul. Looking at their notions about the mind-body interaction will help us to have a fuller picture of the Oxford physiology in the mid- and late-seventeenth century, and will provide us with an interesting case study of the medical response to Cartesian dualism.[37]

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36. See John Henry, 'A Cambridge Platonist's Materialism: Henry More and the Concept of Soul,' Journal of the Warburg and Courtauld Institute, 1986, **49**: 172-95; idem, 'Atomism and Eschatology: Catholicism and Natural Philosophy in the Interregnum,' Brit.Jour.Hist.Sci., 1982, **15**: 211-39; idem, 'Medicine and Pneumatology: Henry More, Richard Baxter, and Francis Glisson's Treatise on the Energetic Nature of Substance,' Med.Hist, 1987, **31**: 15-40; idem, 'Occult Qualities and the Experimental Philosophy: Active Principles in Pre-Newtonian Matter Theory,' Hist.Sci., 1986, **24**: 335-81; idem, 'The Matter of Souls: Medical Theory and Theology in Seventeenth-Century England,' in The Medical Revolution of the Seventeenth Century, eds. by French and Wear, 87-113.

37. The study of the Oxford physiology include: Frank, Harvey and the Oxford Physiologists; idem, 'Science, Medicine and the Universities of Early Modern England: Background and Sources, Parts 1 & 2,' Hist.Sci., 1973, **11**: 194-216 & 239-69; idem, 'Thomas Willis and His Circle: Brain and Mind in Seventeenth-century Medicine,' in The Language of Psyche: Mind and Body in Enlightenment Thought, ed. George S. Rousseau, (Berkeley: University of California Press, 1990), 107-46; Brown, 'Physiology and the Mechanical Philosophy'; idem, 'The College of Physicians and the Acceptance of Iatromechanism.'

First, Descartes' rigid separation of soul and life does not seem to have found supporters in Oxford physiologists. William Harvey (1578-1657), their mentor, consistently claimed that the soul residing in the blood performed vital functions.[38] Following partly Harvey and partly Gassendi, the arch-opponent of Descartes, a lot of Oxford physiologists embraced the Epicurean and anti-Cartesian notion of the corporeal soul controlling the life, which doctrine was to echo in Locke's concept of the human mind.[39] Life was still largely a psychic problem at the Interregnum and Restoration Oxford.[40]

Descartes' account of mind-body interaction, too, was critically examined at Oxford, and the figure behind the criticism seems to have been again Gassendi. Unlike Descartes who maintained there is only one soul in man, Gassendi claimed there are two souls, one corporeal and the other incorporeal, and endowed the corporeal and incorporeal souls with different faculties and different natures, trying to 'Christianize' the Epicurean atomist philosophy.[41] The corporeal soul was material, the

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38. As Harvey's view on the soul and the nutritive and vital faculties, see Pagel, 'The Reaction to Aristotle'; John S. White, 'William Harvey and the Primacy of the Blood,' Ann.Sci., 1986, 43: 239-55.

39. As for Willis's and Locke's idea of the corporeal soul, see John P. Wright, 'Locke, Willis and the Seventeenth-century Epicurean Soul,' in Atoms, Pneuma, and Tranquility: Epicurean and Stoic Themes in European Thought, ed. by Margaret J. Osler (Cambridge: Cambridge U.P., 1991), 239-58. Willis's Sedlean lectures transcribed by Locke and John Lower are available in Thomas Willis, Thomas Willis's Oxford Lectures, trans. and ed. by Kenneth Dewhurst (Oxford: Stanford Publications, 1980).

40. Walter Charleton, Enquiries into Human Nature, in VI Anatomic Praelections in the New Theatre of the Royal College of Physicians in London (London: Robert Boulter, 1680), esp. pp.378-79.

41. Gassendi's works available in English are: Pierre Gassendi's Institutio Logica (1658), ed. with trans. and intro. by Howard Jones (Assen, The Netherlands: van Gorcum, 1981); The Selected Works of Pierre Gassendi, ed. and trans. by Craig B. Brush (New York: Johnson Reprint, 1972). Secondary sources include, Howard Jones, Pierre Gassendi 1592-1655: an Intellectual Biography (Nieukoop: B. de Graaf, 1981); Margaret Osler, 'Baptizing Epicurean Atomism: Pierre Gassendi on the Immortality of the

principle of life and of 'phantasy,' by which term he meant all mental activities which involve the corporeal image of the thing thought.[42] On the other hand, the other part of the soul was incorporeal, immortal, and the basis of the faculty of 'intellectus,' whose uniqueness lay in that it enabled man to think without images (e.g. forming a universal concept).[43]

Walter Charleton, one of the major Oxford figures and the popularizer of Gassendi's atomism,[44] took side with his mentor, and issued a direct and straightforward attack against Cartesian formulation of the dualistic interaction in his Natural History of the Passions (1674), conducting his argument 'as a natural philosopher conversant in pathology.'[45] His most pointed criticism in his work was directed to Descartes' denial of the widely held belief in The Passions, that the passions occur because of the conflicts between 'the lower part of the soul, which we call "sensitive" and the higher or "rational" part of the soul.' Descartes' rejection there of the idea of the passions as a battle between

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Soul,' in Religion, Science, and Worldview: Essays on Honor of Richard S. Westfall, eds. by Margaret J. Osler and Paul Lawrence Farber (Cambridge: Cambridge U.P., 1985), 163-83; David Glidden, 'Hellenistic Background for Gassendi's Theory of Ideas,' Jour.Hist.Ideas, 1988, **49**: 405-24.

42. Gassendi, Institutio Logica, LI-LIII and p.83.

43. Gassendi, Institutio Logica, LIV; The Selected Works of Gassendi, pp.412-13. As for Gassendi's theory of images and of the incorporeal soul, see Emily Michael and Fred S. Michael, 'Two Early Modern Concepts of Mind'; idem, 'Corporeal Ideas in Seventeenth-Century Psychology.'

44. Walter Charleton, Physiologia Epicuro-Gassendo-Charltoniana: or a Fabrick of Science Natural, upon the Hypothesis of Atoms, (London: Thomas Heath, 1654). There is no substantial modern historical study of Walter Charleton. See DSB; Robert Kargon, 'Walter Charleton, Robert Boyle, and the Acceptance of Epicurean Atomism in England,' Isis, 1964, **55**: 184-92.

45. Walter Charleton, Natural History of the Passions, (London: James Magnes, 1674), 'Epistle Prefatory.' He also wrote that he consulted three philosophers' writings on the passions, i.e. Gassendi's, Descartes' and Hobbes' (ibid.)

the two souls was closely connected with one of the fundamentals of his system, indivisibility of the soul: 'there is within us only one soul, and this soul has within it no diversity of parts: it is at once sensitive and rational too.'[46] Given that the soul is indivisible and that there is only one soul, 'It is to the body alone that we should attribute everything that can be observed in us to oppose to our reason.' Descartes thus concluded that the passions were nothing but the mind pushing the pineal gland to one side and the body to the other.[47]

Charleton stood up to defend what Descartes rejected and issued some counter-criticisms against Descartes. As an anatomist, he protested that the anatomical structure of the pineal gland did not fit to perform the role Descartes ascribed to it.[48] Moreover, Charleton was well aware of the built-in fundamental difficulty of Cartesian dualism: how can interaction be possible at all between two entirely different things? Even if one admitted Descartes' model of the pineal gland bending to one side and the other, Charleton argued that Descartes left it inconceivable, 'how

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46. Descartes, Philosophical Writings, vol.1, pp.346 & 355. Indivisibility was the unique feature of res cogitans. As he put it in the Sixth Meditation, 'There is a great difference between the mind and the body inasmuch as the body is by its nature always divisible which the mind is utterly indivisible.' (Philosophical Writings, vol.2, p.59.)

47. Descartes, Philosophical Writings, vol.1, p.346.

48. Charleton, Natural History of the Passions, 'Epistle Prefatory.' Charleton could make use of Thomas Willis' Cerebri Anatome (1664), and perhaps Nicolaus Steno's work (1669), both of which rejected Descartes' localization of the soul at pineal gland on anatomical basis. Thomas Willis, The Anatomy of the Brain, in Willis, Dr Willis's Practice of Physick, Being the Whole Works (London: T. Dring, et al., 1684), pp.42-158; Nicolaus Steno, A Dissertation on the Anatomy of the Brain, trans. with a preface and notes by Edv. Gotredsen (Copenhagen: Arnold Busck, 1950).

an immaterial agent, not infinite, comes to move by impulse a solid body.'[49]

The solution of the difficulty was, Charleton maintained, possible only by introducing the Gassendian corporeal soul, 'the mediation of a third thing that is less disparil [sic] or disproportionate to both':

> It seem'd to me unintelligible, how an agent incorporeal, but not infinite, such as the rational soul by her excellent faculties and proper acts appear's to be, can act physically in and upon a gross and ponderous body, such as ours are, immediately or without the mediation of a third thing; which though corporeal too, yet be of a substance so refined and subtil, as to approach somewhat neerer to the nature of a pure spirit, than the body itself does.[50]

This 'third' intermediate thing was similar also to the animal spirits in pre-Cartesian medicine. In his Treatise of Melancholie (1586), Timothy Bright, for example, wrote there are three things in man, i.e. the body, the spirits, and the soul. Although the animal spirits 'rise from earthly creatures,' they are more excellent than earth. At the same time, they are not 'comparable in purenesse and excellence, unto that breath of life, herewith the Lord make Adam a living soule, whiche proceeded ... immediately from Him selfe.' These three should form an uninterrupted continuum, to ensure that there took place any interaction between the mind and the body:

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49. Charleton, Natural History of the Passions, 'Epistle Prefatory.' See also ibid., p.4.

50. Charleton, Natural History of the Passions, 'Epistle Prefatory.'

as it is not possible to passe from one extreme to an other, but by a meane; and no meane is there in the nature of man, but spirit; by this only the bodie affecteth the mind.'[51]

Although Charleton's language did not include so great a tinge of Neo-Platonist theory of spiritual influx as Bright's, their arguments about the soul and the body were isomorphic. Unlike Descartes who claimed that there are only two kinds of substance and the animal spirits were nothing but matter, Charleton, like Gassendi and Neo-classical doctors, believed there were three things, i.e. the immaterial soul, the gross matter, and the intermediate material agent, without which the interaction between the soul and the gross matter would be impossible. In other words, there had to be two ontologically different categories of matter, instead of only one, to ensure the mind-body interaction to take place. Charleton thus took an explicitly non-Cartesian and largely a Gassendian view of the dual soul and the dual matter and rehabilitated it into the medical discourse on the passions.

The business of building the medical system on the anti-Cartesian and Gassendian idea of the corporeal soul was conducted in a much more large scale by Thomas Willis, another major Oxford figure, in his De Anima Brutorum (1672).[52] There Willis combined Gassendi's essentially metaphysical idea and new elements in physiological investigation at Oxford, to produce a very ambitious system of physiology and pathology of the corporeal soul. In this work, Willis expressed his dissatisfaction at the Aristotelian psychology, in favour of Gassendi's. He

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51. Timothy Bright, A Treatise of Melancholie (London: Thomas Vautrollier, 1586), pp.37-8. For the life of Bright, William J. Carlton, Timothe Bright, Doctor of Physicke (London: Elliot Stock, 1911). For a similar English medical representation of the three things, see, Anthropologie Abstracted: or the Idea of Humane Nature (London: Henry Herrington, 1655), p.97.

52. Indeed, Charleton acknowledged his debt to Willis, in his Natural History of the Passions, 'Epistle Prefatory.'

incorporated natural philosophical ideas of Bacon, van Helmont (1579-1644), Boyle, and Robert Hooke (1635-1703). Willis has also benefited from Richard Lower's (1631-91) formidable skill in dissection, and from the interest in chemistry and atomism which was current in Oxford at that time. In addition, the published book benefited from Christopher Wren's superb technique in engraving.[53] As a proper object of medical study, Willis's corporeal soul had 'not only extension, but members, and as it were organical parts, yea peculiar diseases, and proper means of curing them.'[54] Backed by optimism over the progress of medical knowledge, Willis wanted to add to the Oxford medical research the problems of the corporeal soul, a new physiological and pathological unit: 'why may we not also hope, that there may be yet shewn a new disquisition concerning the soul, and with better luck than hitherto.'[55] Willis thus wanted firmly to establish the non-Cartesian dualism as a medical research programme of the corporeal soul.[56]

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53. Frank, Harvey and the Oxford Physiologists, pp.246-74; idem, 'Thomas Willis and his Circle.' For Bacon's idea of the life-flame, see Thomas S. Hall, History of General Physiology 600 B.C to A.D. 1900, 2 vols. (Chicago: Chicago U.P., 1969), pp.235-36. As for Willis's Helmontian chemical ideas, see J.R. Partington, A History of Chemistry, 4 vols. (London: MacMillan and Co., 1960-70), vol.2, pp.304-11 & p.548 In his Skeptical Chymist (1661), Boyle refuted Paracelsian doctrine of three prime matters (mercury, salt, sulphur) and claimed the proper number would be five, adding water and earth, which was followed by Willis. See Willis, Of Fermentations, in Dr Willis's Practice of Physick, pp.4-8. The relation between Hook's experiments on respiration and combustion and Willis's idea of life as a flame is suggested in Hall, History of General Physiology, vol.1, pp.304-309 & 315-20.

54. Thomas Willis, Two Discourses concerning the Soul of Brutes, trans. by Sydney Portage (London: Thomas Dring, 1683; rept. with intro. by Solomon Diamond, Gainesville, Florida: Scholar's Facsimiles & Reprints, 1971), 'The preface to the reader.'

55. Willis, Two Discourses, p.1.

56. It seems that some other doctors followed Willis's formulation of the new genre: Friedrich Hoffmann was probably influenced by Willis in his setting up an independent chapter on the pathology of the animal spirits

c) Metaphysics and politics of the corporeal soul

Charleton's and Willis's Gassendian corporeal soul theory had its own problems and critics. The problem of the immortality and the immateriality of the soul was largely solved by Gassendi by positing an incorporeal rational soul, independent of the corporeal sensitive one. Willis and Charleton repeated the Gassendian notion that man had an incorporeal soul besides a corporeal one which he shared with animals. Charleton wrote that he wholeheartedly submitted to 'the undeniable authority of the Lateran Council, ... which having decreed the anathematization of all atheists who durst question ... the immortality of the human soul'; Willis wrote that one of the benefits of studying the corporeal soul was that one could know the incorporeal and rational soul by contrast.[57] Indeed, Willis included a long chapter in which he made it clear how the rational and sensitive souls are different, and he made a sort of tour de force of transforming the similarity of the brain of beasts and that of men into evidence for the existence of the rational soul which acts without the body.[58]

Willis and Charleton were, however, aware of another counter-criticism from the Cartesians against the doctrine of the corporeal soul:

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in his Fundamenta Medicinae (1695), intro. and trans. by Lester S. King (London: MacDonald, 1971), 'Of diseases arising from defect of the animal spirits,' pp.67-78.

57. Walter Charleton, The Immortality of the Human Soul, Demonstrated by the Light of Nature (London: Henry Herringman, 1657), p.60; Willis, Two Discourses, p.1.

58. Willis, Two Discourses, 38-44. As for Willis's metaphysical use of the comparative anatomical observations, see W.F. Bynum, 'The Anatomical Method, Natural Theology, and the Functions of the Brain,' Isis, 1973, **64**: 445-69. Besides the issue of the immortality, Willis and Charleton were aware of the possible association of the doctrine of the dual soul with Manicheanism, which needs more detailed study. See Willis, Two Discourses, 'The Epistle Dedicatory' and pp.40-41; Charleton, Natural History of the Passions, 'Epistle Prefatory'; idem, The Immortality of the Human Soul, pp.75-76.

given that the corporeal soul is matter, how can it be sensitive? Samuel Haworth adopted the view and criticized the doctrine of the corporeal soul.[59] He correctly summarized the doctrine as attributing to man 'three essential parts, a body, a [corporeal] soul, and a spirit.' Among the three, the corporeal soul posed a problem, for it is 'a substance ... participating both of the nature of a body and a spirit,' which he thought is a logical absurdity:

> Whether body and spirit be not things of a quite different nature? whether rarefaction or subtilization make a body to be less body, or more a spirit, than it was before?[60]

The point raised here, how matter acquires a special character and becomes a soul-like thing, posed difficulties for Charleton and Willis. Charleton wrote it should 'transcend the capacity of human understanding' to answer to 'this aenigmatic question' of 'what particular mode of composition or contexture of insensible matter ... gives to it the nature and faculties of a sensitive soul.'[61] Unlike for Descartes, however, clear and distinct intelligibility was not the test of truth for Charleton. Even if a certain phenomenon is unintelligible to human reason, it can take place if it pleases God. The omnipotent God must be able to make sluggish and inert matter feel and perceive, by giving certain disposition to it.[62] Willis

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59. Haworth was an empiric doctor patronized by the Duke of York, later James II, and admitted in 1680 as an extra-licentiate to the Royal College. (DNB) One is tempted to see Haworth's criticism of the doctrine of the corporeal soul as an internal struggle in the College. See Harold Cook, The Decline of the Old Medical Regime.

60. Samuel Haworth, Anthropologia: or, a Philosophic Discourse concerning Man (London: Stephen Foster, 1680), pp.30-33.

61. Charleton, Enquiries into Human Nature, p.391.

62. Charleton, Enquiries into Human Nature, pp.387-88.

took an identical position in his attempt to defend the doctrine of corporeal soul:

> I profess the great God, as the only work-man, so also as the first mover, and auspiciously present, every where, was he not able to impress strength, power, and faculties to matter, fitted to the offices of a sensitive life?[63]

Although this defence by Charleton and Willis can be interpreted as an ironical acceptance of the rigorous Cartesian distinction between the body and the mind (they tacitly admitted that matter was insensible in nature, and divine miracle was necessary to make it sensitive), they insisted on the non-Cartesian model of mind-body interaction.

The reasons for their not adopting Descartes' model may be many: the inertia of tradition, Harvey's influence, Gassendi's lead, theology at Oxford, are possible reasons, but full assessment of the factors remains to be studied.[64] To these intellectual factors, I would add tentatively an extra-intellectual one: the political metaphor of the soul. Both Charleton's and Willis' accounts of the relationship between the soul and the body made use of political metaphor, which fit in well with the contemporary political situation.

Charleton's criticism of Descartes was filled with political metaphors: he said that it is absurd to believe that a single and all-powerful ruler (Descartes' rational soul) could be put into submission (mind's being overwhelmed by the passions) by the totally inferior subject (Descartes' inert body). Instead, argued Charleton, the passions should be

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63. Willis, Two Discourses, 'Preface to the reader.' John Wright argues that this passage of Willis might be the direct source of Locke's famous thinking matter hypothesis. Wright, 'Locke, Willis and the Seventeenth-century Epicurean Soul.'

64. Both Charleton and Willis cited Henry Hammond (1605-60), the public orator of Oxford during the Civil War. The connection of religion and medical thinking on the soul at Oxford seems worth looking at.

the product of two rulers (Gassendian rational and sensitive souls) struggling with each other, or 'from a duumvirate, as it were, of rulers contending for superiority within us, and inclining us two contrary ways at once.'[65] The phrases have almost unmistakable political allusion of the Civil War. Indeed, the following account of Charleton's of the 'civil war' between two souls reads just like the history of the Civil War and the Restoration:

> Yea sometimes grown weary of subjection, [the corporeal soul] takes occasion to cast off her yoke of allegence, and like a proud and insolent rebell, aspires to unbounded license and dominion ... And (what is yet more deplorable) the event of this combat is often so unhappy, that the nobler part is subdued and led captive by the ignoble: ... When the divine politie of the rational soul being subverted, the whole unhappy man is furiously carried away to serve the brutish lusts of the insolent usurper, and augment the triumphs of libidinous carnality ... Nay sometimes reason, after she hath been long held captive, breakes off her fetters; and remembering her native soveraignity, grows conscious and shamed of her former lapse: and thereupon with fresh courage and vigour renewing the conflict, vanquishes and deposed the sensitive soul with all its legions of lusts, and gloriously re-established herself in the throne.[66]

The same story of the rebellious corporeal soul succeeding in 'usurpation' and after a while the rational soul in exile returning to restore her former throne is also found in Willis. William Cole, another Oxford physiologist, attributed apoplexies to the soul leaving 'her province and mansion' when

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65. Charleton, Natural History of the Passions, 'Epistle Prefatory.'

66. Charleton, Natural History of the Passions, pp.58-59.

the brain or 'her Royal seate happen[s] to be overwhelmed with such a deluge ... thus become[s] so unfit for her residence.'[67]

And both Charleton and Willis wrote that the dominion of the rational over the corporeal soul is far superior than the reverse: the rational soul establishes 'the precepts of philosophers and moral institute' and with the help of Sacred Religion carries a man near to God, while the usurping corporeal soul makes him little better than the beast, wallowing in sensual pleasures.[68] This says that the proper king frames philosophical, moral and religious man and the usurper does the reverse. One is very much tempted to read this as a Royalist polemic disguised as physiology.

It may be fruitless to ask to what extent their experience of the Civil War, the 'duumvirate' of two rulers, determined their adoption of the doctrine of the corporeal soul. What I would like to argue is that they formulated their presentation of the issue of the dual souls in terms of politics or civil war, and that we have good reason to relate it to their experience of the Civil War. Both Willis and Charleton witnessed the Royalist army defeated by Parliament and Charles II (1630-85) exiled. When the monarchy was restored, it did not eliminate the Parliament but the 'duumvirate' continued. It is thus not surprising that the Royalist physiologists thought there must be two souls or rulers in man.

Willis established the non-Cartesian contemporary medical discourse of the physiology and pathology of the corporeal soul. I now turn to his account of mental diseases and ask whether it involved any radical shift from earlier medical schemes to explain madness. The next section will highlight some continuities found there.

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67. Willis, Two Discourses, p.43; William Cole, A Physico-medical Essay concerning the Late Frequency of Apoplexies (Oxford: Sheldonian Theatre, 1689), p.25.

68. Willis, Two Discourses, p.43.

New Wines in Old Bottles: continuities in the basic issues

a) Diagnostic categories

The diagnostic categories of 'mental diseases' changed little over the course of the seventeenth century. The three major diagnostic labels continued to be phrensy, mania and melancholy. Laurens wrote 'the disease which doe most sharply assaile our mindes, ... are three: the frensie, madness, and melancholie'; Lazare Rivière (1589-1655), a celebrated professor at Montpellier, wrote that the diseases of the internal senses of imagination, memory and reasoning were 'frenzie, madness, melancholly.'[69] The trio formed a unit because in all of them the imagination and/or reason are deprived. And they were mutually distinguished from each other: phrensy was accompanied by fever, while mania and melancholia were not; mania and melancholia were characterized by fury and sadness respectively.[70] To these tripartite

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69. André du Laurens, A Discourse of the Preservation of the Sight: of Melancholike Diseases; of Rheumes, and of Old Age, trans. by Richard Surphlet (London: for Ralph Iacson, 1599), p.81; Lazare Rivière, The Practice of Physick, in Several Books ... by Nicholas Culpeper, Abdiah Cole and William Rowland. Being Chiefly a Translation of the Works of ... Lazarus Riverius (London: by Peter Cole, 1655), p.1. 'Madness' seems to have been most usual English translation of 'mania.' Philip Barrough, for instance, wrote 'mania in Greek is a disease which the Latines call insania and furor: that is, madnesse and furiousness.' See Philip Barrough, The Method of Physick, containing the Causes, Signes, and Cures of Inward Diseases of Mans Body, from the Head to the Foot (London: Abraham Miller, 1652), p.44.

70. See, for instance, Daniel Sennert, The Institutions or Fundamental of the Whole Art, Both of Physick and Chiurgery, trans. by N.D.B.P. (London: Lodowick Lloyd, 1656), pp.74-75; Oskar Diethelm and Thomas F. Hefferman, 'Felix Platter and Psychiatry,' Jour.Hist.Behav.Sci., 1965, 1: 10-23.

system, some nosologists added stupidity and some other diseases like drunkenness and rabies.[71]

This diagnostic system can be found in the identical form in Willis' Two Discourses. Willis singled out a class of diseases whose common symptom is that 'the imagination, and by consequence the mind and will, and the other powers of the superior soul, are wont to be perverted.' And this group was construed in a very similar manner, largely consisting in fever and sadness/fury issues.[72] Although Willis was usually credited with the honour of being the first doctor to describe the disease which is today called manic-depressive disorder, the idea that he should make it an independent diagnostic category seems never to have occurred to him.[73] He did not, therefore, created any new diagnostic categories, neither did he stop to use the old ones.

b) The centrality of the interactive agent

When we turn to the most basic schemes in the aetiologies and therapeutics of madness, we find an apparent continuity there again. To be brief, both pre-Cartesian and post-Cartesian doctors believed that madness was essentially a product of bodily disorders and especially of the

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71. See Diethelm and Hefferman, 'Felix Platter,' 13. In establishing the class of the disorders in which the imagination and the ratiocination are hurt, John Jonston, a Scot-Polish medical and natural philosophical writer who took MD at Leiden, counted hurt of memory, short-term delirium, and rabies besides with the usual three. See John Jonston, The Idea of Practical Physick in Twelve Books, trans. by Nicholas Culpeper (London: Peter Cole, 1657), 'The Eighth Book,' pp.18-24.

72. Willis, Two Discourses, p.179.

73. Kenneth Dewhurst, Thomas Willis as a Physician (Los Angels: William Andrews Clark Memorial Library, 1964), pp.6-7. For another attempt to look at Willis from modern psychiatric view, see Paul F. Cranefield, 'A Seventeenth-century View of Mental Deficiency and Schizophrenia: Thomas Willis on "Stupidity or Foolishness",' Bull.Hist.Med., 1961, 35: 291-316.

disorder in the mind-body interactive agent, and medical intervention should mainly directed to it, rather than the mind per se.

In the late sixteenth and early seventeenth century the discourse on mental disease was formulated around the brain. In his Anatomy of Melancholy, Robert Burton wrote that 'the most received division [of melancholy] is into three kinds': one in which the brain is primarily affected, one in which the temperature of the whole body affects the brain, and one in which corrupted vapour from the lower bowel, liver, spleen, or hypochondria affects the brain.[74] This says that the seat of melancholy is the brain, and there are three ways for the brain to be affected.[75] As the widely accepted seat of the rational soul, the brain was the pivotal organ of the pathology of the mind.[76]

The seat of melancholy was the brain, and its most immediate cause was disorders in the animal spirits. Rivière wrote:

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74. Robert Burton, The Anatomy of Melancholy, ed. with an introduction by Holbrook Jackson (New York: Vintage Books, 1977), part I, p.175. As for Burton and his book, the following studies are useful: Bergen Evans, The Psychiatry of Robert Burton (New York: Octagon Books, 1972); Lawrence Babb, Sanity in Bedlam: a Study of Robert Burton's Anatomy of Melancholy (Westport, Connecticut: Greenwood Press, 1959); MacDonald, Mystical Bedlam, chap.5.

75. See also: Barrough, The Method of Physick, p.45; Petrus Pomarius, Enchiridion Medicum: Containing an Epitome of the Whole Course of Physicke (London: John Royston et al., 1612), p.25; Bright, A Treatise of Melancholie, p.2.

76. Burton, The Anatomy of Melancholy, part I, p.170. 'Some difference I find amongst writers, about the principal part affected in this disease, whether it be the brain, or heart, or some other member. Most are of opinion that it is the brain.' See also Bright, A Treatise of Melancholie, 'Epistle dedicatory'; Gualtherus Bruele, Praxis Medicinae, or the Physicians Practice (London: William Sheares, 1639), p.25. As for long and complicated history of the controversies over whether the seat of the soul is the brain or heart, see Walter Pagel, 'Medieval and Renaissance Contributions to Knowledge of the Brain and Its Functions,' in The History and Philosophy of Knowledge of the Brain and Its Functions, ed. by F.N.L. Poynter (Oxford: Blackwell Scientific Publications, 1958), 95-114.

> The immediate cause of melancholy is a dark spirit or vapour very black; for when the animal spirits ought in their own nature to be pure, thin, and transparent for the cheerful preforming of the actions of the brain, and to cause cheerfulness, if they change their constitution, and become dark and obscure, they produce sorrow and fear.[77]

As the bridge between the mind and the body, the animal spirits had to possess the qualities to facilitate the interaction. Although corporeal, they should be more 'noble' than gross earthy matter, pure, thin, and transparent. And when this instrument of the soul was deprived of its noble qualities, it 'becometh an instrument unhandsome for performance of such actions.'[78]

Despite all his chemical-corpuscular 'modern' theories and vastly improved knowledge of the anatomy of the brain, Willis followed the same scheme of understanding the aetiology of mental disorders delineated above, and elaborated it by his new learning. In Willis's research programme, the seat of madness was the sensitive part of the corporeal soul, which was the theoretical equivalent of the animal spirits. As the sensitive corporeal soul resided mainly in the brain and the nervous system, the pathological site of madness was the brain: mental diseases 'are ordinarily induced by reason of ... distempers of the head, and of the spirits inhabiting it.'[79] Both for pre-Cartesian and post-Cartesian doctors, what mattered the most in the pathology of madness was the material agent of the mind-body interaction and the brain, its main residing place.

Accordingly, when they talked about seemingly 'psychological' aetiology of madness, it was almost always constructed with reference to

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77. Rivière, The Practice of Physick, p.49.

78. Bright, A Treatise of Melancholie, pp.35-36. The same idea was expressed in Laurens, A Discourse, p.91.

79. Willis, Two Discourses, p.179.

the body. This is the most evident in their accounts of the passions as a cause. Robert Burton, for example, wrote that 'passions and perturbations of the mind' would cause melancholy, giving a long account of how the passions like sorrow, fear, shame, envy, hatred, anger, discontents, ambition, immoderate pleasures, self-love, and excessive scholarly study, could be the causes of melancholy.[80] These passions of the mind, however, did not constitute genuine 'psychological' problem for Burton, but were mapped on the bodily pathology. He traced the process from the image to the passions as the process from the brain to the heart: imagination communicated the image to the heart, then the heart, responding to the passion caused by it, 'bends itself to prosecute or avoid it, and withal, draweth with it other humours to help it: so in pleasure, concur great store of purer spirits, in sadness, much melancholy blood; in ire, choler.' This says that the violent passions cause madness because they affect the physiological processes at the heart and because they do harm to the balance of humours and the good disposition of the body.[81]

This formulation of the indirect psychological causation of madness is found in the identical form in Willis. Willis wrote that 'destroying love, vehement sadness, panick fear, envy, shame, care, and immoderate study' often excite melancholy. The process from the passions to melancholy was explained, again with the heart as the pivotal organ of producing the pathogenic matter: the vehement passions deviates the animal spirits from its due courses and prevents the heart from moving in regular manner; then the blood, being deprived of its due temper, 'encreases to the melancholick disposition.'[82]

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80. Burton, The Anatomy of Melancholy, part I, pp.250-330.

81. Burton, The Anatomy of Melancholy, part I, p.252. In another place, citing Fernel and Piso, Burton wrote that the sorrow 'hinders concoction, refrigirates the heart, takes away stomach, colour, and sleep; thickens the blood, and contaminates the spirits.' (Ibid, p.260).

82. Willis, Two Discourses, p.192. The process from the violent passions to mania was understood in the same framework: the violent and terrible

Likewise, in the therapeutics of madness, the major target of medical intervention was the body and the mind-body medium, both in pre-Cartesian and post-Cartesian eras. Willis and neo-classical doctors shared certain kind of technique of seemingly 'psychological' therapies, which was actually directed to the body. Summarizing contemporary medical opinions, Burton wrote that to avoid the disturbances of the mind was of utmost importance in curing melancholy. However 'psychological' it may seem, the rationale the Renaissance doctors attached to the 'psychological' therapy was somatic: Thomas Fienus (1567-1631), for example, wrote that the imagination cannot per se cure diseases, but only by inducing bodily changes.[83] When music was prescribed to a melancholic patient, Levinus Lemnius (1505-1568) thought that it affected 'not only the ears, but the very arteries, the vital and animal spirits.'[84] The 'psychological' therapies were not directed exclusively to the mind of the patients: rather, it rationale of cure was based on the change in the state of the body it would create.

In just the same way, Willis thought that acting on the passions of the patients would help to cure them of mental diseases: the vehement passions had to be 'appeased, or subdued by other opposite.' Accordingly, 'to desperate love ought to be applied shrewd indignation and hatred: sadness is to be opposed with the flatteries of pleasure, musick,' etc.[85] In doing so, Willis, too, was aiming at the animal spirits of the patients: 'the intention of the physician is so much to lift up, make volatile, and corroborate the more fixed or dejected animal spirits.' And pleasant talk,

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passions confuses the motion of the animal spirits, triggers the change in its chemical constitution through blood, and engenders the chemical liquor which is the immediate cause of mania. (Ibid., p.203.)

83. L.J. Rather, 'Thomas Fienus' (1567-1631) Dialectical Investigation of the Imagination as Cause and Cure of Bodily Disease,' Bull.Hist.Med., 1967, 41: 349-67; Burton, The Anatomy of Melancholy, part II, p.103.

84. Cited in Burton, The Anatomy of Melancholy, part II, p.115.

85. Willis, Two Discourses, pp.193-94.

jesting, singing, pictures, dancing, travelling, building houses or gardens, tilling the ground, etc. would contribute to the cure of melancholy, because by doing so 'the animal spirits, being called outwards. may be solicited from their diversions, into their former and accustomed tracts.'[86] Even Willis' notorious cure of mania by 'punishments, and hard usage, in a strait room' was principally directed at the animal spirits, not at the mind per se: 'for by this means, the corporeal soul being in some measure depressed and restrained.'[87] For psychological treatment to make sense, the somatic underpinning seems to have been necessary, both to pre-Cartesian and post-Cartesian doctors.[88]

Here a few words are necessary about the supernatural causation of madness in Renaissance medicine, for many historians have argued that around the seventeenth century the 'de-mystification' of madness was proceeding centred around the disbelief in witchcraft and demonic possession.[89] Although it is clear that the late seventeenth century witnessed the gradual disappearance of the supernatural explanation of madness, it seems wrong to assume that medical theory before was genuinely supernatural.

It is true that many Renaissance doctors believed that madness was sometimes occasioned by supernatural causes: Burton wrote that the

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86. Willis, Two Discourses, p.194.

87. Willis, Two Discourses, p.206.

88. There was, however, the tradition of a sort of psychological treatment without somatic explanation, which consisted in playing a deceptive trick on the madman and outwitting him. See William Vaughan, Approved Directions for Health, Both Naturall and Artificiall: Derived from the Best Physitians As Well As Moderne As Auncient, 4th ed. (London: Roger Jackson, 1612), p.90; Robert Bayfield, A Treatise de Morborum Capitis Essentiis et Prognosticis (London: by D. Maxwel, 1663), p.37; James [sic] Ferrand, Erotomania: or A Treatise Discoursing of the Essence, Causes, Symptomes, Prognosticks, and Cure of Love Melancholy (Oxford: L. Lichfield, 1640), 'the author to the reader' and p.278; Willis, Two Discourses, p.193.

89. See my introductory section above.

general causes of melancholy were either natural or supernatural, by the latter meaning madness from God and His Angels or from the devil; Felix Platter (1536-1614) wrote that a malicious spirit could be the cause of demoniacal possession, a species of mania.[90] But these supernatural causes did not constitute a genuine and self-standing medical problem. There existed a clear notion among medical writers that physicians' concern should be 'natural' causes. Hence supernaturally caused madness should be either excluded from genuine medical concern, or looked at only from 'natural' point of view. When madness was caused by God's punishment (like Nebuchadnezzar's), all one could do was to 'submit ourselves unto the mighty hand of God, acknowledge our offences, call to Him for mercy,' for 'physicians and physic can do no good.'[91] As for madness caused through Devil's intervention, one did not have to deny the possibility of the demonic possession or the existence of devil to take 'natural' point of view. Many doctors adopted the idea that the devil affected the victim through natural means, i.e. melancholy humours: as Burton cites Lemnius, 'evil spirits insert themselves in depraved humours and black bile.' Hence the exorcism of diabolically caused melancholy was performed with the help of purging the melancholic humour, and sometimes even purging only was enough.[92] Supernatural etiology of

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90. Burton, The Anatomy of Melancholy, part I, p.178; Diethlem, 'Felix Platter and Psychiatry,' 16.

91. Burton, The Anatomy of Melancholy, part I, p.179. See also Bright, A Treatise of Melancholie, p.189, in which Bright wrote 'Here no medicine, no purgative, no cordiall, no tryacle or balm are able to assure the afflicted soule and trembling heart, now panting under the terrors of God.'

92. See Burton, The Anatomy of Melancholy, part I, p.200; Martin Ruland, Experimental Physick, or Seven Hundred Famous and Rare Cures, trans. by Nicholas Culpeper and Abdiah Cole (London: by Peter Cole, 1662), p.284. This 'naturalistic' interpretation of the devil's operation seems to be in accordance with the general view held by late Renaissance demonologists. The devil's power was regarded as limited to natural realm, only able to produce effects through natural means, and hence unable to achieve something 'supernatural' or miracle, which was allowed only to God. See Clark, 'The Scientific Status of Demonology.'

madness was, therefore, not the essential part of Neo-classical medicine on madness. The medical discourse on madness was framed mainly around the medium of mind-body interaction, as was Willis's pathology of the corporeal soul. Exaggeration of the supernatural elements seems to be misleading, at least when we understand its intellectual and theoretical framework.

c) The intactness of the rational soul.

Both Neo-classical physicians and Willis, therefore, understood madness primarily as the disorder of mind-body interaction. Moreover, both consistently argued that the immortal and rational soul per se remained intact in madness. Although madness affected the faculties of the mind like imagination and reasoning, and although 'the minde seems to be blame worthy,' Bright insisted that 'the bodie and this [animal] spirite are rather to be charged, things corporall and earthy':

> This affecting of the minde, I understand not to be anything empairing of the nature [of the mind]; or decay of any facultie therin; or shortening of immortality; or any such infirmitie inflicted upon the soule from the bodie: but such a disposition, and such discontentment, as a false string lute, giveth to the musician: or a rough and evill fashioned pen, to the cunning writer: which only obscureth, the shew of either art, and nothing diminisheth of that facultie, which with better instruments, would fully content the eye with a faire hand, and satisfie the eare with most pleasant harmonie.[93]

The defect, thus, lay in the instrument of the mind, rather than the mind itself.

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93. Bright, A Treatise of Melancholie, pp.36-38.

Bright's idea that the soul is intact during madness was framed as a polemic against the mortalists and materialists. The tactics of combatting the heresy were more clearly spelled out in his 'Epistle Dedicatorie.' There Bright lamented that physician curing madness through bodily methods 'hath caused some to judge more basely of the soule, then agreeth with pietie and nature, ... not considering herein any thing divine, and above the ordinarie events, and natural course of thinges.' 'To confute the absurd error' and 'correcting the judgement of such as so greatly mistake the matter' were, he wrote, his major aims in publishing the book.[94] It seems almost certain that Bright had in mind Lucretius's proof of the mortality of the soul in Book Three of De Rerum Natura, which used the instance of madness and its cure by bodily medicines as an evidence for the corporeality and hence mortality of the soul, claiming 'whether mind is sick ... or whether it is changed by medicine ... gives signs of its mortality.'[95] Bright wanted to refute this 'Stoical prophanes of Atheisme.'[96]

Another tactic in Bright's refutation of the mortalist and materialist heresy was to argue that there is another type of soul's 'disease' which had no organic disorder, and which any bodily or medicinal intervention could not cure. Bright expected the existence of such calamity to support his argument that there was something that is not body in man. Bright dedicated the last quarter of his book to a discussion of the differences between melancholy as bodily disorder and 'that heavy hande of God upon the afflicted conscience,' and maintained that bodily melancholy did not affect the substance of the soul.[97] Accordingly, its cure was no medical

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94. Bright, A Treatise of Melancholie, 'Epistle Dedicatory.'

95. Lucretius, De Rerum Natura Libri Sex, 3 vols., ed. and trans. by Cyril Bailey (Oxford: Clarendon Press, 1947), vol.1, pp.325-29.

96. Bright, A Treatise of Melancholy, p.188.

97. Bright, A Treatise of Melancholy, 'Epistle Dedicatory.' His discussion 'of the affection of conscience for sinne' occupies pp.184-242 of his book,

problem: Bright wrote that 'the puritie of the bloud, and the sinceritie and livelinesse of the spirits avayle nothing to mitigate the paine [of the wounded conscience.]'[98]

The religious polemic against mortalism was also found in Laurens's book on melancholy. There he wrote that the madman is just like a beast, and 'thou shalt not find therein any thing worthie of a man.' This did not, however, mean that the madman's soul itself suffered change:

> I would not have thee (O thou atheist whosoever thou art) hereupon to conclude, that the soule of man suffereth anything in his essence, and thereby to become subject to corruption: it is never altered or changed, neither can it suffer anything.[99]

Just as 'the sunne doth never feele any diminishment of brightness' when it seems dark and eclipsed because of thick clowd or the moon coming between, the soul, too, never changes its essence even when it seems to lose its power of reasoning.[100]

Like Bright, Laurens also drew a clear distinction between what he considered a genuine psychological disturbance and madness caused by somatic disorders. Laurens made it clear that the problem is whether the soul is affected per se or via body:

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see especially pp.193-198. Bright's strong tone of religious polemic is quite understandable, since he made narrow escape from the Massacre of St Bartholomew's Day when he was in Paris and later he deserted medical career for ecclesiastical one. See DNB and Carlton, Timothe Bright. As for seventeenth-century association with atheism and medicine, see Henry, 'The Matter of Souls.'

98. Bright, A Treatise of Melancholie, p.194. See also Burton on the melancholy caused by God, The Anatomy of Melancholy, part I, p.179.

99. Laurens, A Discourse, pp.81-82.

100. Laurens, A Discourse, p.82.

> This alteration [of human mind] is seene oftentimes in the soule alone, the bodie standing sound and without blemish: as when a man by his malicious will becoming an apostate and revolt, defaceth the ingraven forme of the deitie, and commeth by the filth of sinne to defile the holy temple of God ... I come to the other deformitie, which is violently throwne upon man, and may happen unto the most religious, being, when the bodie, which is as it were vesell of the soule, is so greatly altered and corrupted, the sences seeme all of them to wander and goe atray, every motion to be out of order, the imagination troubled, the reason foolish and rash, ...[101]

The former, maintained Laurens, was not a medical problem: 'I goe not about to redresse this deformitie, I leave the discourse for the learned divines.' And the religious profession seems to have welcomed the dichotomy of bodily madness and purely spiritual mental disturbance. For sickness of the soul per se, one had to prescribe 'the soules physick,' moral and religious instruction, and sometimes punishment: while madness needs medical and bodily treatment, and 'a tender and charitable compassion' instead of severe censure.[102]

In madness, therefore, the malady was located in animal spirits, the corporeal instrument of the soul. With this scheme in mind, some Neo-classical doctors went even further to determine which faculty was disordered in madness and which remained intact, or which was primarily damaged and which was consequently disordered. Despite some disagreements, the generally accepted theory was 'first in imagination, and afterwards in reason,' as Burton assessed. Daniel Sennert (1572-1637)

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101. Laurens, A Discourse, p.81.

102. John Abernethy, A Christian and Heavenly Treatise: Containing Physicke for the Soule (London: Robert Allot, 1630), p.54. Lemnius applied the dichotomy of the spiritual error which needs punishment and madness needs medicines and pity to the problem of suicide. See Levinus Lemnius, The Secret Miracles of Nature: in Four Books (London: by Jo. Streater, 1658), pp.63-65.

wrote that in melancholy, the memory and imagination are 'either abolished or diminished, principally through the fault of the instrument, which is the brain,' whereas 'the reasonable faculty is not diminished nor abolished of its self, ... but because the fantasie is hurt.'[103]

The pre-Cartesian scheme of the body as the sole pathological site and the soul as an immutable, incorruptible, and immortal substance, and of imagination as the primarily affected faculty was retained by many late seventeenth-century doctors. In 1685, Michael Etmueller (1644-1683) expressed the same concern:

> The intellect or rational faculty being immaterial, cannot be vitiated of it self by any morbific cause; but for so much as 'tis conversant about the objects of our internal sense, it makes use of their ministry; and if they are out of order, shares of common calamity. ... Thus whatever impairs the right use of reason, must immediately affect the imagination and memory.[104]

This was even more the case with Charleton and Willis, for they were very keen to distinguish the rational and sensitive souls and their respective faculties.[105] Accordingly, Willis inherited the dualistic model which said again that the primarily disordered faculty in mental disorders was imagination, and that the intellect was secondarily affected:

> if any time the imagination is so disturbed, or perverted, that it falsly conceives, or evilly composes or divides, the species and notions brought from the sense or memory; presently for that

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103. Burton, The Anatomy of Melancholy, part I, p.171; Sennert, The Institutions, p.29. See also Laurens, A Discourse, p.74.

104. Michael Etmueller, Etmullerus Abridg'd: or a Compleat System of the Theory and Practice of Physick (London: E. Harris, et al., 1699), p.532.

105. Willis, Two Discourses, p.1.

> reason the intellect beholds or forms conceptions and thoughts only deformed, distracted one from another, and very confused.[106]

Even stupidity, which 'most chiefly belongs to the rational soul, and signifies a defect of the intellect and judgment,' actually had its roots in imagination.[107]

Summing up, the basic structure of the medical discourses on madness during the seventeenth century seems to have been quite stable despite the Scientific Revolution going on then. Willis's discourse on mental disorders was formulated around the same issues as Bright's and Laurens'. They used very much the same diagnostic category. The principal defect in madness lay in the animal spirits. Hence therapeutics were principally targeted at the body. The rational and immaterial soul itself must remain intact during madness. The faculty initially damaged was imagination; the higher faculty was damaged only indirectly. Medical theory on madness was rigorously dualistic with principal stress on the body long before Descartes, in the sense that it established two rigorously distinguished things: the matter/body which is susceptible to diseases and the unchangeable, incorruptible and immortal soul.

Shut within his own world: New Images about madness

a) Light versus darkness: Renaissance etiology of madness

As we have seen in the previous section, both early and late seventeenth-century medical discourse on mental disorders was centred on the animal spirits and the faculty of imagination. Now let us examine how the disordered animal spirits could actually cause mental disorders in those two schemes, to locate the radical shift which occurred there.

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106. Willis, Two Discourses, p.179.

107. Willis, Two Discourses, p.209.

Since in Renaissance and Neo-classical medicine the Galenic humoral system was still dominant, the ideas on madness were largely framed around the issue of humours, with melancholy as the key humour. The other humours could cause mental diseases by being burned and cooked into 'unnatural melancholy': the 'unnatural' melancholic humours were engendered, wrote Bright, by overheating of either natural melancholic humour, choler, or blood. Each had different emotional symptoms: 'if it [unnatural melancholy] rise from [overheated] natural melancholy, [it] frames monstrous terrors of feare and heaviness without cause, ... if it rise of choler, then rage playeth her part, and furie joyned with madness, ... if blood supplies it, jest prevailes.'[108]

These melancholic humours cause melancholy, the doctors believed, because they are black and darken the mind, half metaphorically and half literary. Bright wrote that when the animal spirits was stained by the melancholic humour:

> that natural and internal light is darkened, their fancies arise vayne, false, and voide of ground: even as in the external sensible darkness, a false illusion will appeare unto our imagination, which the light being brought in is discerned to be an abuse of fancie.[109]

Two levels of logic are fused here: one is the level of metaphor of the light of reason and of melancholy darkening it into madness, and the other is the level of the physical purity and transparency of the spirits and the

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108. Bright, A Treatise of Melancholie, p.111. See also Bruele, Praxis Medicinae, p.103. As for the plurality of the meaning of 'melancholy,' see Jean Céard, 'Folie et démonologie au XVIe siècle,' in Folie et déraison à la Renaissance, ed. by Gerlo, 129-48. See also Stanley Jackson, Melancholia and Depression, pp.7-11.

109. Bright, A Treatise of Melancholie, p.103.

blackness of the melancholic humour.[110] The logic is that because the melancholic humour is dark, it darkens the light of reason and makes the mind mad.

This contrast of light and darkness was, therefore, at the pivot of the Renaissance and Neo-classical medical discourse on madness.[111] Rivière expressed a similar idea that the animal spirits need to be pure, thin, and clear 'for the perfect performance of the actions of the brain,' and when a melancholic humour, 'being possessed with thickness, darkness, and blackness' infects the spirits and 'makes them cloudy and dark,' the contaminated spirits infect the image one makes, 'as a colored glass doth represent the species of the object to the eye with its own tincture.' Laurens wrote that melancholy-infected spirits troubles the powers of the soul principally by damaging the imagination, 'presenting unto it continually blacke formes and strange visions.'[112]

b) Madness in the new Cartesian epistemology

On one level, the late seventeenth-century writers had the same scheme to explain the madness as that of the early part of the century: the disordered animal spirits damaged the faculty of imagination and the false images were created in the mind of the patients. The process was, however, explained in a radically different way, and the impetus to the recasting seems to have come from Descartes' new epistemology, which exploded the Aristotelian one, under which the Renaissance and the Neo-classical physicians had theorized.

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110. As for the Renaissance mixture of the different level of discourse, see Michel Foucault, The Order of Things, trans. by A.M. Sheridan Smith (London: Tavistock Publications, 1974).

111. As for the basic scheme of argument by polarity in the early modern period, see Clark, 'Inversion, Misrule and the Meaning of Witchcraft.'

112. Rivière, The Practice of Physick, p.49; Laurens, A Discourse, p.91.

The key to the Aristotelian epistemology was the intentional species residing in the object perceived. In short, the theory of intentional species held that the idea which we have in our mind when we perceive something external resides in the object perceived. Pre-Cartesian medicine made use of this theory: in Anthropologie Abstracted, for example, the author wrote that 'the objects are endowed with sensible qualities and contain in them the formality of sensibility.' Hence, the sensible objects are not 'restrained only to the poverty and coarse operation of real and material, but are enriched with the finer endowments of spiritual and intentional qualities.'[113]

The Scholastic scheme of intentional species met radical criticisms from 'modern' philosophers, including Descartes. In his Optics, Descartes compared our perception of external things to a blind man touching things with a rod in his hand.[114] This model says that nothing is transmitted from the perceived body to the perceiving mind other than matter in motion, and what triggers the idea in the mind is nothing but the mechanical resistance of the seat of the soul to the motion transmitted from the object to the nerves via our eyes. Hence, 'there is no need to suppose ... that there is something in the objects which resembles the ideas or sensations that we have of them.'[115] What exists outside our mind is extended matter in motion, totally void of anything that resembles the idea of heat, colour, smell, etc., which takes place in our mind. Entering from our sense organs, transmitted through nerves, and giving a mechanical shock at the seat of the soul, only the matter in motion is necessary to trigger our ideas.

Since the most immediate cause of our idea is the change at the seat of the soul, mere mechanical shock is able to produce an idea in our

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113. Anthropologie Abstracted, p.102.

114. Descartes, Philosophical Writings, vol.1, pp.152-56.

115. Descartes, Philosophical Writings, vol.1, p.153.

mind even without the object corresponding to the idea. Descartes made use of the example of seeing fire when struck on the eye:

> people struck in the eye seem to see countless sparks and flashes before them, even though they shut their eyes or are in a very dark place: hence this sensation can be ascribed only to be the force of the blow, which sets the optic nerve-fibres in motion as a bright light would do.[116]

With no inherent species in the object perceived, the presence of the object became unnecessary for us to have the idea of it.

Descartes went further to argue that the same process is taking place in the mind of a madman and of a man who is dreaming:

> madmen and those who are asleep often, see, or think they see, various objects, which are nevertheless not before their eyes: namely, certain vapours disturb their brain and arrange those of its part normally engaged in vision exactly as they would be if these objects were present.[117]

Here Descartes took up the old framework of madness as the disturbance of the brain and the false vision, and radically recast the content: the false idea of a madman was not due to the darkness of the animal spirits, but to the motion in the brain which reproduces the false idea. A Renaissance madman was in darkness and was deprived of the light of reason, with the animal spirits darkened by melancholic humour. Descartes' madman was dreaming, with the animal spirits giving shock to the seat of the soul and raising corresponding ideas.

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116. Descartes, Philosophical Writings, vol.1, pp.167-68.

117. Descartes, Philosophical Writings, vol.1, p.172.

c) Medical application of the new epistemology

Descartes' new mechanical epistemology was embraced by some mid-century English philosophers, such as Hobbes and Boyle.[118] In particular, Boyle adopted Descartes' theory of perception and illusion caused by matter in motion in toto. In his Experiments and Considerations Touching Colours, Boyle equated seeing fire, dreaming and madness.[119] Given the popularity of the model, and Willis's familiarity with the contemporary natural philosophical writings, there is little surprise in that Descartes' new model of perception and illusion found its way into Willis's medical formulation of the problem of sense perception and madness.

In his Sedleian lectures, Willis elaborated speculation on the process by which the motion of the animal spirits, like the billiard-balls transmitting the shock, cause our sensation, perception, and imagination.[120] The shock-transmission model was very much elaborated with anatomical details in his Cerebri Anatome: when the shock on the exterior part of the soul was transmitted to the 'chambered bodies' of the brain, 'as an undulation or waving of waters,' perception took place; the imagination is due to this impression reaching the callous body, and the memory is made when 'the same fluctuation of spirits is struck against the cortex of the brain.'[121]

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118. Thomas Hobbes, Leviathan, ed. by C.B. MacPherson (Harmondsworth: Penguin, 1968), p.86; Robert Boyle, Selected Philosophical Papers of Robert Boyle, ed. by M.A. Stewart (Manchester: Manchester U.P., 1979), xv.

119. Robert Boyle, Robert Boyle on Natural Philosophy: an Essay with Selections from His Writings, ed. by Marie Boas Hall (Bloomington: Indiana University Press, 1965), pp.255-56.

120. Willis, Oxford Lectures, pp.54 & 65-66.

121. Thomas Willis, The Anatomy of the Brain, in Dr Willis's Practice of Physick, pp.78-9.

Willis combined this model of the motion of the spirits making images with chemico-corpuscular explanation to produce a new system of pathology of mental diseases. He started to outline the system of chemical exploration of the animal spirits in mental disorders in his Sedleian lectures, which developed into an elaborate, if fanciful, system in De Anima Brutorum.[122] The classical trio of phrensy, melancholia, and mania were attributed to the changes in the chemical nature of the animal spirits, which must be of the nature of volatile salt when healthy. When the spirits contain too much sulphur, they will excite phrensy. If they come to have the nature of vinegar, they will cause melancholy. The animal spirits having acquired the nature of nitrous stygian water will cause mania.

Willis underpinned this statement by correlating the motion of the chemically transformed animal spirits and the mental symptoms of the mental diseases. Let us take his explanation of melancholy, for example. Willis stated the three major symptoms of melancholy are:

> 1. That the distemper'd are almost continually busied in thinking, that their phantasie is scarce ever idle or at quiet. 2. In their thinking they comprehend in their mind fewer things that before they were wont, that oftentimes they roll about in their mind day and night the same thing, never thinking of other things that are sometimes of far greater moment. 3. The ideas of objects or conceptions appear often deformed, and like hobgoblins, but are still represented in a larger kind or form; so that all small things seem to them great and difficult.[123]

Willis tried to correlate the three symptoms of the melancholic mind with the motion of the vinegar-like animal spirits, by relying on the shock-

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122. Willis, Oxford Lectures, pp.119-34.

123. Willis, Two Discourses, p.188.

transmission model of our image-making as the basic assumption. From the observation of the vinegar, Willis drew three characteristics of the motion of the acid nervous juice, each corresponding to one of the three symptoms of melancholy.

First, the particles in the vinegar-like animal spirits 'creep about here and there, slowly, but incessantly.'[124] This is why the mind of the melancholiacs is incessantly engaged in thinking, as whenever the spirits open a certain pore in the brain, there takes place a corresponding idea. Secondly, as the effluvia from vinegar 'do not go far ... but penetrate only the neighbouring bodies,' so the acid animal spirits 'do not irradiate and quickly pass thorow the whole compass of the brain, as before, but flowing in the middle part, are carried with its force only into the nearest pores and passages.'[125] This is why the melancholic mind can think about only few things and is always engaged in the same idea. Thirdly, the acid animal spirits can 'cut out pores and passages that are new' in the same manner as the spirits of vinegar make the cork friable and crumbling, and 'many bands of spirits are thrust together.' The opening of unnatural pores and the unnatural accumulation of the spirits make the mind think of extraordinary things and misunderstand a small object as 'very great and of notable weight.'[126]

The intention of Willis's chemical analogy of the melancholic and acid animal spirits was to correlate their specific types of motion in the brain with the mode of producing images in the mind. Phrensy, mania and stupidity were provided with the linkage of the two Cartesian categories of phenomena--matter in motion and the idea produced by the shock it gives.[127] As we have seen, the origin of the departure from the

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124. Willis, Two Discourses, p.190.

125. Willis, Two Discourses, p.190

126. Willis, Two Discourses, p.190.

127. Willis, Two Discourses, p.182.

dichotomy of light and darkness to new model of madness as an illusion caused by matter in wrong motion was in Descartes', Hobbes's and Boyle's philosophical writings about the qualities and our perception of them. And Willis was not an isolated figure in adopting the new epistemology: Friedrich Hoffmann (1660-1742) was another to embrace the Cartesian model of perception and madness, probably via Willis.[128] And a lot of early eighteenth-century medical writers jumped on the new bandwagon, as I shall show later.

The shift at Oxford from humour-based to mechanical and corpuscular medicine did not involve total changes in fundamental schemes of the technical medical discourse on madness. Diagnostic categories, the pivotal role of the animal spirits both in etiology and therapy, intactness of the rational and immaterial soul, and the imagination as the principally damaged faculty were all found in medicine both before and after Descartes. Willis's research programme of the physiology and pathology of the corporeal soul was very much a new language of Helmontian chemistry and Gassendian atomism in old bottles.

I would like to argue that my 'continuity thesis' in the medical theories of madness during the seventeenth century is consistent with, rather than in conflict with, Michael MacDonald's assertion of the shift in the culture of curing the mad during the seventeenth century. MacDonald asserts convincingly that the decline of eclectic and diverse culture in treating madness took place largely because of extra-intellectual factors such as Puritan hostility towards magic and dominance of élite and learned culture over popular one, rather than because of the shifts in the medial theory itself. My examination above confirmed MacDonald's assertion: the basic tenets of the élite medical discourse remained very much the same during the century.

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128. Hoffmann, Fundamenta Medicinae, p.71.

There was, however, the major shift of recasting madness according to the new mechanical epistemology during the century. The implication of the new model was that the right perception of the world resembled madman's illusion, for both are the product of the matter in motion, rather than the direct influx of the idea residing in the object perceived. Denied direct access to the external world, both sane and insane mind were enclosed within the veil of representational ideas.

In the light of this new model of madness, Foucault's argument that Descartes and the eighteenth century purged the possibility of being mad from thinking ego seems to need revision. In his Histoire de la folie, Foucault claimed that Descartes put dreams and madness in ontologically different categories and did not admit the possibility of his being mad, whereas the possibility of his dreaming was examined and eventually denied. For Foucault, this attitude of Descartes meant that Western reason in 'l'âge classique' purged itself of the threat of madness in a priori way: Renaissance anxiety over the mixture of reason and madness had gone and the reason in late seventeenth and early and mid-eighteenth century assumed an essential gap between itself and madness from the beginning.[129]

First, at the most superficial level, Foucault is simply wrong in his attempt to attribute to Descartes the fundamental difference between madness and dreaming. Rather, Descartes established a close parallelism of madness and dreaming, and doctors followed him: Hoffmann wrote, 'deliria are the dreams of the waking.'[130] Secondly, and more importantly, I would like to argue that Cartesian philosophy minimized the gap between right perception and madness, rather than created the bottomless abyss between them, as Foucault wanted us to believe. One has to remember that Descartes made use of the example of madness to convince the reader of the validity of his new mechanistic model of right

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129. Foucault, Histoire de la folie, pp.56-59.

130. Hoffmann, Fundamenta Medicinae, p.71.

sense perception. There mad illusion was something comparable to our right perception of the external world, and our perception resembles madman's illusion in its causation. Madness, the perception of things those which do not exist, provided an important prop for the new epistemology which tried to do without species residing in the object, and according to Berkeley's version, even without the external world itself. Madness became, therefore, an integral part of Descartes' and other eighteenth-century philosophers' epistemology. The threat of madness was still there, or, in other words, it was no longer a threat to but a replica of our normal and normative mental activity.

Chapter Two

Soul Lost--and Regained?: British Iatro-Mathematicians 1690-1720

Introduction

a) A new scientific group: Pitcairn and his followers

From around 1690 to 1720, a newly formed scientific group was active in the English and Scottish medical scene. This group had a distinct identity: it embraced an extremely idiosyncratic research programme; proposed sweeping reforms in medical theory and practice; and launched vigorous attacks against other medical 'schools.' Although it was in many senses an offshoot of mid- and late-seventeenth-century English natural philosophy, it turned out to be a formidable critic of the schools which flourished during the Interregnum and Restoration. Thomas Sydenham's (1624-89) Baconian bedside medicine; van Helmont's chemical animistic medicine; and Willis's elaborate system of the corporeal soul: all were scornfully dismissed by the supporters of this new research programme.

The pivotal figure of this group was Archibald Pitcairn (1652-1713), shortly to become professor of physic at Leiden and later on at Edinburgh. Pitcairn recast the Italian iatro-mechanism of Giovanni Alphonso Borelli (1608-78) and Lorenzo Bellini (1643-1704). He initiated many English and Scottish medical students into his 'mathematical physic' at Leiden and Edinburgh, and later lent his patronage to some of his Scottish students who were trying to build a scientific reputation in London.[1] He developed

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1. A good modern biography of Pitcairn is still wanting. Useful materials include: DNB; DSB; Charles Webster, An Account of the Life and Writings of the Celebrated Dr Archibald Pitcairne (Edinburgh: Gordon and Murray, 1781); Anita Guerrini, 'Archibald Pitcairne and Newtonian Medicine,' Med.Hist., 1987, 31: 70-83; The Best of Our Own: Letters of Archibald Pitcairn 1652-1713, collected and annotated by W.J.Johnston (Edinburgh: Saorsa Books, 1979); G. A. Lindeboom, 'Pitcairne's Leyden

in Edinburgh in the 1690s such a close association with George Hepburn (1670?-1759), Jacobus Johnstone (fl.1700), and George Cheyne (1671-1743), (all formerly students of his at Leiden), that one of their opponents used the phrase 'Dr. P. and his club.'[2] In addition to this 'club,' one can find around Pitcairn many prominent medical writers of the day, active in London and Oxford, as well as Edinburgh. These include Richard Mead (1673-1754), William Cockburn (1669-1739), James Keill (1673-1719), John Quincy (d.1722), and John Freind, (1675-1728).[3] Besides sharing some scientific concerns, they were connected with each other by religious, political and regional ties. As Anita Guerrini has shown, the major members were 'Episcopalian, High Church, anti-Whig (Tory or Jacobite) Scots.'[4]

Since this group was strongly associated with Borelli and Bellini and claimed that the human body is a machine, they have sometimes been labelled 'iatro-mechanist' by historians.[5] As has been pointed out by

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Interlude Described from the Documents,' Ann.Sci., 1963, **19**: 273-84; Anita Guerrini, 'The Tory Newtonians: Gregory, Pitcairne, and Their Circle,' Journal of British Studies, 1986, **25**: 288-311.

2. [Charles Oliphant?], A Refutation of the Short Answer to the Examination of Dr. Pitcairn's Dissertations (Edinburgh: n.p., 1702), p.16.

3. For biographical information about these figures, see DSB; DNB; Matthew Maty, Authentic Memoirs of the Life of Richard Mead (London: J. Whiston et al., 1755); Richard H. Meade, In the Sunshine of Life: a Biography of Dr. Richard Mead 1673-1754 (Philadelphia: Dorrance & Company, 1974); Arnold Zuckerman, 'Dr. Richard Mead (1673-1754),' University of Illinois, Ph.D., 1965; Roy Porter, 'Introduction' to George Cheyne, The English Malady (London,1733; rept., London: Tavistock/Routledge, 1991); F. Valdez and C.D. O'Malley, 'James Keill of Northampton, Physician, Anatomist, and Physiologist,' Med.Hist., 1971, **15**: 317-35; Guerrini, 'The Tory Newtonians'; R.W.Innes Smith, English-Speaking Students of Medicine at the University of Leiden (Edinburgh: Oliver and Boyd, 1932).

4. Guerrini, 'Tory Newtonians.'

5. See, for instance, Lester King, The Philosophy of Medicine: the Early Eighteenth Century (Cambridge, Mass.: Harvard U.P., 1978), Chap.5

Theodore Brown, however, their program of reforming medical theory and practice was of a very different nature from the late seventeenth-century medicine which developed under the influence of the mechanical philosophy of Descartes or Gassendi.[6] Indeed, Cartesian physiology and the theory of Willis, the most influential Gassendian medical theorist, were lambasted by Pitcairn.[7] It was not mechanical philosophy but mathematics which provided the model upon which the members of this school moulded their medicine.[8] Their enemies, too, perceived the medicine of the group as 'mathematical' rather than 'mechanical': Pitcairn was depicted in a satirical pamphlet as Apollo Mathematicus, and later Albrecht von Haller (1708-77) wrote 'Archibaldus Pitcairne dictus est inter physiologos iatro-mathematicus.'[9] Although it is sometimes fruitless to classify historical figures into 'isms,' it appears that the group may be more properly called the 'iatro-mathematical' school.

This scientific group had not been an object of serious historical study until Theodore Brown, in his thesis in 1968, put it into an well-

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'iatromechanism'.

6. Theodore M. Brown, 'The Mechanical Philosophy and the "Animal Oeconomy": a Study in the Development of English Physiology in the Seventeenth and Early Eighteenth Century,' Princeton University, Ph.D., 1968, Chaps. 4 and 5.

7. For general criticisms against Cartesians and Willisians, see, for instance, Archibald Pitcairn, The Works, Wherein Are Discovered the True Foundation and Principles of the Physick (London: E. Curll, 1715), p.9 and pp.34-37; idem, The Philosophical and Mathematical Elements of Physick in Two Books (London: A. Bell, 1718), vi.

8. Richard Mead, A Mechanical Account of Poisons (London: R. Smith, 1702), 'Preface,' which says 'introducing mathematical studies... into medicine ... is so much moment to the welfare of mankind'; George Cheyne, A New Theory of Acute and Slow Continu'd Fevers, 2nd ed. (London: G. Strahan, 1702), p.27, where Cheyne stated 'we want a Principia Medicinae Theoreticae Mathematicae.'

9. Edward Eizat, Apollo Mathematicus: or the Art of Curing Diseases by the Mathematics According to the Principles of Dr. Pitcairn ([London]: n.p., 1695); Webster, Dr. Archibald Pitcairne, p.26.

articulated context of mechanical philosophy from Harvey up to the mid-eighteenth century. He singled out Pitcairn's 'mathematical physic' as a radical departure from the older versions of mechanical physiological theories and depicted the acceptance of a Pitcairnian research program by the Royal Society of London and, more reluctantly, by the Royal College of Physicians.[10] While such late seventeenth-century Oxford physiologists like Thomas Willis, Walter Charleton, and William Cole, had tried to underpin medical theory and practice by largely 'hypothetical' corpuscular philosophy, Pitcairn followed the example of Isaac Newton (1642-1727), the new hero in the British scientific scene, and aimed at providing medicine with the more solid foundation of mathematics.[11] Just as Newton wrote Principia (1687) to give a mathematical description of the macrocosm, so Pitcairn and his disciples looked at the microcosm of the human body in terms of the laws of motion, which were to be described in the language of mathematics.

The influence of Newton's ideas upon Pitcairn's circle has been also studied from the viewpoint of the history of matter-theory. Arnold Thackray's Atoms and Powers and Robert Schofield's Mechanism and Materialism, both published in 1970, argued that Newtonian matter theory (short-range attraction or subtle elastic fluid with attractive force) played a critical role in the medical writings of Keill, Freind, Mead and others.[12] More recently, Anita Guerrini has published a series of detailed papers

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10. Brown, 'The Mechanical Philosophy and the "Animal Oeconomy,"'; idem, 'Medicine in the Shadow of the Principia,' Jour.Hist.Ideas, 1987, **41**: 629-48.

11. For a more contextualized view of the background of Willis and others, see Robert G. Frank, Harvey and Oxford Physiologists (Berkeley: University of California Press, 1980).

12. Arnold Thackray, Atoms and Powers: an Essay on Newtonian Matter-Theory and the Development of Chemistry (Cambridge, Mass.: Harvard U.P., 1970), pp.43-85; Robert E. Schofield, Mechanism and Materialism: British Natural Philosophy in an Age of Reason (Princeton: Princeton U.P., 1970), pp.40-72.

about Pitcairn's circle, arguing along the same lines as Thackray and Schofield and investigating the shifts in their physiological theories in accordance with Newton's alterations in successive editions of Principia and Optics. Guerrini has also shown that Newton not only provided an intellectual impetus, but also acted as a direct and indirect patron.[13]

b) The problems: psychiatry without mind

In this chapter, I will concentrate on the writings of the iatro-mathematicians led by Pitcairn, and investigate their ideas on the soul/mind and its disorders. Since their radical reformulation of the whole domain of medicine included a thorough recasting of the medical problem of the soul/mind, we have to start from rather fundamental issues. Instead of asking how they understood the soul/mind and its diseases, we have to raise the question of whether or not 'mind' represented the object of their study, and whether they considered madness to be a 'mental' disease. The short answer to these questions is negative. Although the iatro-mathematicians still wrote about mania and melancholia, and admitted that man has a soul, there was hardly any space for the soul/mind in their newly constructed medical discourse and accordingly their notions on madness did not encompass any 'mental' issues.

Pitcairn's expulsion of the soul/mind from the scope of medical inquiry was largely the consequence of his adopting mathematics as the model of medicine, a practice which was eagerly followed by his disciples. Their 'mathematical physic' not only meant quantifying medicine and stuffing their publications with ostentatious numerical formulae and apish adoption of the ideas of Newton: it also involved a radical recasting of the

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13. Guerrini, 'Archibald Pitcairne'; idem, 'Tory Newtonians'; idem, 'Isaac Newton, George Cheyne and the Principia Medicinae,' in The Medical Revolution of the Seventeenth Century, eds. by Roger French and Andrew Wear (Cambridge: Cambridge U.P., 1989), 222-45; idem, 'James Keill, George Cheyne, and Newtonian Physiology, 1690-1740,' Jour.Hist.Bio., 1985, 18: 247-66.

sphere of medical knowledge by a deliberate restriction on the way this knowledge is obtained. This was motivated by both intellectual and political concerns. Pitcairn tried to redefine the scope of medical discourse, partly in order to determine proper objects of the discourse and get rid of improper ones, and partly to specify the field in which the 'mathematical physic' was to take place. His expulsion of mental issues was part of his ambitious and thorough reform of medical discourse.

In the following sections I shall look at this attempt to create a medicine without the soul, in which the discourse on madness excluded any mental issues. The first section will examine what Pitcairn and his followers aimed to achieve by restricting the scope of their medical discourse, and why they came to embrace that rather peculiar research programme. I will look at both the intellectual background to their mathematical physic, and their social concern of their 'mathematical physic' will be looked at. I will argue that the impetus for their attempt came not solely from Newton: the epistemology and scientific methodology put forth by late seventeenth-century English writers like Robert Boyle and John Locke played an important part in the formulation of their tactics, as well as their desire to combat medical 'empirics' and to differentiate themselves from quacks.

The second section is concerned with their exclusion of the soul/mind from the realm of medical knowledge, and their assertion that 'pure body' is the only proper object of medical inquiry. The similarities and differences between their research programme and 'dualistic,' especially Cartesian, programmes will be assessed. Although their systematic expulsion of psychic issues was unique, I will argue that they were, in a sense, expressing what was then in the air: unlike Charleton and Willis, many British medical writers around 1690-1720 were reluctant to talk about the soul, and the iatro-mathematicians seem to have focussed the attitude.

The third section will examine their recasting of 'mental' disorders like mania and melancholia. The major source I have consulted for this

section is Richard Mead's account of the physical effects of tarantula bites and of rabies. I will show how Mead and others adapted the clinical observations on madness to their mathematical and purely bodily medicine, and managed to explain madness with almost no recourse to mental issues.

'Mathematical Physic': In Quest of Certainty

a) Medicine free from 'philosophical sects'

Pitcairn was very innovative right from the beginning of his teaching career. In his inaugural lecture at Leiden in 1692, he announced that his principal and ultimate goal was to establish firm and stable principles on which medical theory and practice should be based. To achieve this aim, Pitcairn wrote, it is necessary to get rid of speculative 'philosophical sects' from medicine: 'let the infamous mark of uncertainty, ... be at last wiped off, and removed from our profession.' And the audience seems to have appreciated his point and welcomed it.[14]

The key word of his reform in medicine was 'certainty.' Terms like 'solid principles,' 'certain foundation of medicine,' 'infallible ground,' etc. were often used to describe his attempt, both by his friends and foes. George Sewell (d. 1726) and J.T. Desaguliers (1683-1744), the English translators of Pitcairn's medical works, wrote that Pitcairn introduced into medicine 'a more solid way of reasoning,' and his Leiden lectures 'lay more certain and infallible fundamentals of the most comprehensive art [of

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14. 'An Oration proving the profession of physic free from the tyranny of any sect of philosophers' in Archibald Pitcairn, The Whole Works of Dr. Archibald Pitcairn, 2nd ed., trans. by George Sewell and J.T. Desaguliers (London: E. Curll et al., 1727), pp.5-22. The quote is from p.17. As for the background of the lecture, see Lindeboom, 'Pitcairne's Leiden Interlude.'

physic].'[15] In his Apollo Mathematicus, Edward Eizat included a chapter entitled 'A discourse of certainty,' and attacked Pitcairn's abuse of the idea of certainty in medicine.[16]

This Pitcairn's concern to provide medicine with certain and firm foundations was shared by some slightly later medical theorists on the Continent, some of whom may have been inspired by Pitcairn's attempt. Friedrich Hoffmann (1660-1742) wished to delineate the infallible basic ground in Fundamenta Medicinae (1695): 'As with every sort of discipline the medical art should have its firm basic principle and steadfast maxims.' Herman Boerhaave (1668-1738), one of Pitcairn's students at Leiden and was the most eminent Professor of medicine there, began his Institutiones Medicae (1709) with almost the same claim as Hoffmann's: 'as it is in other sciences, we ought to make our principles or fundamentals certain and plain demonstrations.'[17] After years of upheavals and bitter sectarian struggles in medicine, medical theorists at the turn of the century seem to have become aware of the need to build a certain and irrefutable basis for medical knowledge and to achieve universal consent. These are the goals which Descartes tried to achieve in philosophy.

Pitcairn's attempt to establish the unshakable basis of medicine was, however, diametrically opposite to the Cartesian enterprise. Indeed,

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15. Pitcairn, The Works, vii; idem, The Whole Works, 'Translators' Preface.'

16. Eizat, Apollo Mathematicus, 'A Discourse of Certainty,' pp.1-25. Almost nothing is known about the author.

17. Friedrich Hoffmann, Fundamenta Medicinae, trans. and intro. by Lester S. King, (London: MacDonald, 1971), p.3. Herman Boerhaave, Institutions in Physick, trans. by Joseph Browne (London: Jonah Browne, 1714), xii. As for the social and intellectual background of Boerhaave's quest for 'fundamentals,' see Lester King, The Background of Herman Boerhaave's Doctrines (Leiden: Universitaire Pers, 1965); Andrew Cunningham, 'Medicine to Calm the Mind: Boerhaave's Medical System and Why It Was Adopted in Edinburgh,' in The Medical Enlightenment of the Eighteenth Century, eds. by Andrew Cunningham and Roger French (Cambridge: Cambridge U.P., 1990), 40-66.

Descartes was one of Pitcairn's targets of criticism. As the title of his inaugural lecture shows, Pitcairn stated that to achieve certainty it was necessary to get rid of all speculative hypotheses of 'philosophical sects' from medicine, and in the 'philosophical sects' he included not only Aristotelian, Willisian and Helmontian, but also Cartesian. Cartesian 'subtile matter,' as well as the Aristotelian 'fear of vacuum' and Willisian and Helmontian 'fermentation,' were all speculative 'occult qualities' and stained by the 'infamous mark of uncertainty.'[18] Basing medical theory on such notions would only do harm and be 'of no service to a physician.'[19] For Pitcairn, Cartesian mechanical philosophy was no more certain than Aristotelian and chemical ones, and medicine should do without any of them.

In his hostility towards 'philosophical sects' and their 'occult qualities,' Pitcairn shows a striking similarity with the major English advocates of the 'new science' in the late seventeenth century. The supporters of the Baconian research programme who flocked into the Royal Society of London thought that knowledge about the natural world should be freed from the preoccupations of speculative philosophical schools (idola theatri), and that this could be done by replacing philosophical doctrines based on occult qualities with mechanical principles based on observation and experiment. These would achieve universal assent.[20] In his Sceptical Chymist (1661), Robert Boyle attacked

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18. Pitcairn, The Whole Works, pp.14 & 17.

19. Pitcairn, The Whole Works, p.10.

20. Some relevant primary and secondary materials are: Marie Boas Hall, Robert Boyle on Natural Philosophy: an Essay with Selections from His Writings (Bloomington: Indiana University Press, 1965), esp. p.58; Thomas Sprat, The History of the Royal Society of London (London: J. Martyn, 1667); P.B. Wood, 'Methodology and Apologetic: Thomas Sprat's History of the Royal Society,' Brit.Jour.Hist.Sci., 1980, 13: 1-26; Peter Dear, 'Totius in Verba: Rhetoric and Authority in the Early Royal Society,' Isis, 1985, 76: 145-61; Steven Shapin, 'Pump and Circumstance: Robert Boyle's Literary Technology,' Social Study of Science, 1984, 14: 481-520. However, K.T. Hoppen, 'The Nature of the Early Royal Society,' Brit.Jour.Hist.Sci.,

Aristotelian and Paracelsian doctrines as not being well founded and lacking in certainty. Boyle made a similar criticism of the Hobbesian version of Epicurean atomism in his Some Considerations touching the Usefulness of Experimental Philosophy (1663-71), and Joseph Glanvill, another spokesman of the Royal Society, rejected philosophical speculations in his Vanity of Dogmatizing (1661).[21]

Pitcairn was surely well aware of what was going on in London's scientific community, for Edinburgh in the 1680's saw a vigorous infusion of scientific culture and the establishment of scientific communities modelled mainly after the Royal Society of London.[22] Pitcairn was one of the members of the Royal College of Physicians of Edinburgh when it was founded in 1681 and was well acquainted with some of the key figures of the early Scottish Enlightenment, such as David Gregory (1661-1708) and Sir Robert Sibbald (1641-1722). Pitcairn's attempt to reform medicine by getting rid of philosophical speculations, which is best exemplified in his Leiden inaugural lecture, was a product of the early Scottish Enlightenment, which was itself a descendant of the English scientific milieu, as embodied in the Royal Society.

b) Limit on the scope of medical knowledge

1976, **9**: 1-24 & 243-73, argues that the occult qualities still played an important role in the writings of minor fellows.

21. Boyle's and Glanvill's hostility to ill-founded philosophical opinions is neatly discussed in Henry G. van Leeuwen, The Problem of Certainty in English Thought 1630-1690 (Hague: Martinus Nijhoff, 1963), pp.71-89.

22. John Christie, 'The Origin and Development of the Scottish Scientific Community, 1680-1760,' Hist.Sci., 1974, **12**: 122-41; Roger L. Emerson, 'Science and the Origins and Concerns of the Scottish Enlightenment,' Hist.Sci., 1988, **26**: 333-66; idem, 'Sir Robert Sibbald, Kt, the Royal Society of Scotland and the Origins of the Scottish Enlightenment,' Ann.Sci., 1988, **45**: 41-72.

Pitcairn's debt to late seventeenth-century English natural philosophy becomes clearer if one looks at the rationale of his attempt to do without any philosophical school. His logic of reform in medicine was construed along the line of the epistemology and scientific methodology of the proponents of the Royal Society, which was later embodied into John Locke's Essay concerning Human Understanding (1690). His concern for certainty in medicine also had its origin there.

In brief, the proponents of the Royal Society were keen to establish the limit of human knowledge; to distinguish certain knowledge from probable and dubious opinion; and to adapt their scientific study of the natural world to the compass of the human mind: 'before we set our selves upon enquiries of that nature, it was necessary to examine our own abilities, and see, what objects our understandings were, or were not fitted to deal with.'[23] They largely agreed that with the exception of mathematics, which gives absolute certainty, immediate sensory knowledge could achieve the highest probability and therefore should form the most reliable basis of our knowledge of natural world.[24] Accordingly, they were often reluctant to trespass across the boundary between what is given directly to the senses and what is not, and they wanted to do without dubious opinion about the 'hidden' nature of things.[25] A student of

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23. John Locke, An Essay concerning Human Understanding, ed. by P.H. Nidditch (Oxford: Clarendon Press, 1975), p.7. See John Yolton, Locke and the Compass of Human Understanding (Cambridge: Cambridge U.P., 1970), chaps 2 & 3.

24. The problem of the certain and probable knowledge has been discussed in Leeuwen, The Problem of Certainty; Barbara J. Shapiro, Probability and Certainty in Seventeenth-Century England (Princeton: Princeton U.P., 1983).

25. See, for instance, Locke, Essay, 4.3. Although one is tempted to say that Pitcairn imbibed Lockean agnosticism about the nature of things via the first edition of Newton's Principia (1687), Lockean epistemology had not become evident in Newton's writings until the second edition of Principia (1713), to which Newton added Regulae Philosophandi. The correspondence between Locke and Newton in 1690-1692 was mainly concerned with their biblical study, not epistemology. See H.W.Turnbill

natural philosophy should, therefore, abandon or minimize speculation about the hidden nature of things and should concentrate on their 'qualities' and 'powers,' which were directly given to senses. Robert Boyle wrote in his Origin of Forms and Qualities according to the Corpuscular Philosophy (1666):

> For the knowledge we have of the bodies without us, being, for the most part, fetched from the informations the mind receives by the senses, we scarce know anything else in bodies, upon whose account they can work upon our senses, save their qualities.[26]

Given that human knowledge about the natural world was drawn from sense experience, direct sense information should be given priority over philosophical speculations about the hidden nature of things.[27]

Although Pitcairn did not make any reference to the source of his ideas about the epistemological restriction on the study of medicine, it is obvious that he owed a lot to what was claimed by the English proponents of the methodology of new science and the philosophical justification of it. Applying the argument on certainty and probability, Pitcairn maintained that an infallible principle of medicine is possible only by adjusting the limit of medical discourse to the sensory boundaries of human knowledge: 'nothing ought to be used as a principle in physic, which is not as certain

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ed. The Correspondence of Isaac Newton vol.3 (Cambridge: Cambridge U.P., 1961), pp.71, 79, 82, 129-49. The influence of Lockean epistemology upon Newton's later methodological argument (Hypotheses non fingo) is discussed in G.A. Rogers, 'The System of Locke and Newton,' in Contemporary Newtonian Research, ed. by Zev Bechler (Dordrecht: Reidel, 1982), 215-38.

26. Boyle, The Origin of Forms and Qualities ... (1666), in Selected Philosophical Papers of Robert Boyle, ed. and intro. by M.A. Stewart (Manchester: Manchester University Press, 1979), p.13.

27. Glanvill expressed a similar concern. See Leeuwen, The Problem of Certainty, p.77.

as the object of our senses.'[28] And the following passage from his Leiden inaugural lecture reads like Boyle's epistemological justification of experimental philosophy:

> It is evident to any one who has been a little more than ordinary conversant in the mathematics, or the practice of physic, that our knowledge of things is confined to the relations they bear to one another, the laws and their properties or powers. ... a physical cause, and the nature of things which the philosophers so much enquire about, is that unknown something in things from whence they will have all its powers and properties derived.[29]

This passages inplies that it is necessary to get rid of speculations of 'philosophical sects,' because the human mind can never penetrate into such 'physical causes, and the nature of things' with certainty, but is restricted in knowing their operations, 'powers and relations.' Since any doctrine about the hidden causes of phenomena was beyond the direct access of the human mind, a solid basis for medicine could be established only by discarding all doctrines about the 'hidden' nature of things.[30] Only those investigation of the operations of things which could be confirmed by 'the evidence of senses' would serve as a certain basis of medicine. This viewpoint is clearly a product of late seventeenth-century English epistemology and scientific methodology as propagated by Boyle, Locke and Newton.[31]

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28. Pitcairn, The Whole Works, p.14.

29. Pitcairn, The Whole Works, pp.9-10. This aspect of Pitcairn's was paid due attention first in Lester King, The Philosophy of Medicine, pp.112-14.

30. Pitcairn, The Whole Works, p.17.

31. For Locke's epistemology and Newton's methodology, see G.A. Rogers, 'The System of Locke and Newton'; idem, 'Locke's Essay and Newton's Principia,' Jour.Hist.Ideas, 1978, **39**: 217-232.

Pitcairn's debt to the milieu of English natural philosophy is rendered the more evident when he is compared with Hoffmann, a medical theorist who also tried to provide medicine with an infallible basis but went in the opposite direction. Following the Cartesian model of reforming natural philosophy, Hoffmann thought Descartes' mechanical philosophy was the solution to the present chaotic struggle of medical sects, rather than the cause of it. Hoffmann wrote 'without natural philosophy the whole science of healing is maimed and weak,' and 'the origin of sects must be attributed to ignorance [my emphasis] of natural philosophy.' Cartesian natural philosophy would help medicine as it 'peers into the recesses of nature, examines the hidden structures, proportion, and mixtures.'[32] As we have seen, Pitcairn dismissed these aims as fanciful and essentially impossible. It seems justifiable to paint Hoffmann's reform as a product of Cartesian enterprise and Pitcairn's as a product of Lockean empiricism.

Pitcairn's English and empirical scientific methodology appealed to many. James Keill rejected Descartes' philosophy on the hidden nature of things because it was not certain but 'merely possible.' If one follows Cartesian philosophy, Keill warned, the only result is an uncertain medicine:

> Most theories of diseases are built upon such [dubious] principles, and therefore we never can have any certainty, or indeed so much as a degree of probability, that the indications drawn from them are right.[33]

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32. Hoffmann, Fundamenta Medicinae, pp.1-2.

33. James Keill, Essays on Several Parts of the Animal Oeconomy, 2nd ed., (London: G. Strahan, 1717), xx. As for detailed analysis of the shift in Keill's matter theory, see Guerrini, 'James Keill, George Cheyne, and Newtonian Physiology.'

John Quincy justified his limiting medical knowledge within the 'properties' of things, by a long argument on the various degrees of certainty (which resembles Glanvill's argument) and by citing Locke's arguments on qualities and the human mind.[34] Any search after hidden causes of phenomena was scornfully dismissed. In one of his bitter controversial pamphlets with Charles Oliphant over Pitcairn's tract on fever, Jacobus Johnstone wrote that 'Mr. Newton has taught us, that no man ever knew a physical cause, neither will you find any mention of a final cause in this dissertation of Dr. P's.'[35] William Cockburn wrote that it was only 'quacks and mountebanks' who claimed to have knowledge about 'these first qualities, or physical causes.'[36] The supporters of Pitcairn's reform in medicine all agreed that certain medicine must be achieved only by the sacrifice of any discourse on hidden causes, which are not certainly known by human mind.

Quite understandably, Willis's highly speculative research programme of the hidden chemical principles and the intangible corporeal soul was attacked by Pitcairn and his disciples. Pitcairn wrote that Willis' books were 'full of nothing but old notions disguised under new forms' and the English translators of Pitcairn's work turned a scornful shoulder by writing that Charleton and Willis 'have only abused us with new words, without any ideas, and which have no relation to the animal oeconomy.'[37]

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34. John Quincy, 'An introduction concerning mechanical knowledge, and the grounds of certainty in physick,' in Medicina Statica: Being the Aphorisms of Sanctorius Translated into English with Large Explanations Wherein Given a Mechanical Account of the Animal Oeconomy, ed. and trans. by John Quincy (London: W. Newton, 1712), xxxvi-xlii.

35. J[acobus].J[ohnstone], A Short Answer to a Late Pamphlet against Doctor Pitcairn's Dissertations (Edinburgh: Thomas Carruthers, 1702), p.11. Attribution of the pamphlet to Johnstone is mine.

36. William Cockburn, The Present Uncertainty in the Knowledge of Medicine (London: B. Barker, 1703), 'preface.'

37. Pitcairn, The Works, p.34; idem, The Philosophical and Mathematical Elements, vi. The irony is that Charleton (and probably Willis too) was

The rapid decline of Willis's chemico-atomistic medicine seems to have been partly due to the fact that English medicine at the turn of the century had the aim of achieving certainty: it tried to restrict the extent of medical knowledge according to the limitations of the human mind and to eliminate any discourse on hidden causes. As British medicine seems to have entered a new phase of putting rigorous limits on the extent of medical discourse, Willis's research programme was simply stamped out.

c) 'History' versus 'Demonstration': Politics of iatromathematics.

I have argued that the attempts by Pitcairn and his followers to achieve certainty in medicine by basing medical principles on the senses was a product of late-seventeenth-century English milieu. However, they made an important departure from the argument on certain and probable knowledge. Pitcairnians claimed that they could achieve the same extent of certainty in the field of medicine as one could in mathematics and geometry, while Locke and others thought one could not. Locke, for example, drew a sharp distinction between mathematical and geometrical demonstration and empirically based sciences in terms of their levels of certainty:

> I am apt to doubt that, how soever human industry may advance useful and experimental philosophy in physical things, scientifical will be out of our reach ... Certainty and demonstration are things we must not, in these matters, pretend to.[38]

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well acquainted with the argument about certainty and probability. See Walter Charleton, The Immortality of the Human Soul, Demonstrated by the Light of Nature (London: Henry Herringman, 1657), p.62.

38. Locke, Essay, 4.3.26. See Shapiro, Probability and Certainty; Leeuwen, The Problem of Certainty.

It was largely agreed among late seventeenth-century English natural philosophers that mathematics was, pace Descartes, an inappropriate model for the study of natural world, for they belonged to different categories of knowledge.

This raises the question of why and how Pitcairnians tried to introduce mathematics into medicine and thus provide it with 'certainty,' departing in this respect from the English tradition. Part of the answer lies, as has been already pointed out, in the influence of Newton.[39] That the iatro-mathematicians modelled their works after Newton's is obvious from looking at their books: many of them adopted a Principia-like format of geometrical demonstration and included numerous mathematical formulae.[40] Imitating Newton, they started from the high probability of sensory data, reduced them to laws, and expressed the laws in the manner of mathematical and geometrical demonstration: by doing this they hoped to provide their work with an absolute certainty. Pitcairn explained how to achieve hypothesis-free medical system, by following the example of Newton's Principia:

> The business of a physician is to weigh and consider the powers of medicines and diseases as far as they are discoverable by their operations, and to reduce them to Laws. ... Physicians ought to propose the method of astronomers as a pattern for their imitation. They never ... call in the assistance of a romantic hypothesis ... but ... compute the powers and forces which bodies in motion observes in their tendency to other bodies.[41]

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39. See articles by Guerrini and Brown, cited above.

40. Some of the examples are: Cheyne, A New Theory of Fevers; Keill, Essays on Several Parts of the Animal Oeconomy.

41. Pitcairn, The Whole Works, pp.10-14. The term 'powers' was a technical term in late seventeenth-century natural philosophy, which meant a kind of quality of a body discoverable by its virtue to affect other bodies. See for example, Boyle, Selected Philosophical Papers, pp.1-96; Locke,

This passage states that physicians, like astronomers, should do three things: refrain from basing their argument on speculations about the 'nature of things'; limit their concern to 'operations, powers, and forces' discoverable by the senses; and establish laws about described in mathematical terms. The last part, Pitcairn thought, would give his medical system a certainty as absolute as that enjoyed by Newton's Principia. Newton's achievement seems to have inspired Pitcairn to defy the rigid barrier between certain mathematical knowledge and probable sensual knowledge.[42]

Another reason why the iatro-mathematicians insisted on the certainty of medicine was their struggle with another offshoot of empiricism, namely 'empirical medicine,' as proposed by Thomas Sydenham.[43] Newton was used as a device to provide Pitcairn's 'mathematical physic' with superiority over Sydenham's research programme, and the iatro-mathematicians made a severe assault on the Sydenhamian idea that medical knowledge should be based on the mere

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Essay, 2.21.

42. Pitcairn was not the only figure that tried to follow Newton and to provide non-mathematical knowledge with the certainty of mathematics. A lot of philosophers and theologians became optimistic about the prospect of making philosophy and theology infallible. Locke, for example, wrote, perhaps inspired by Newton, 'moral knowledge is as capable of real certainty, as mathematicks.' (Essay, 4.4.7.) See Mordechai Feingold, 'Partnership in Glory: Newton and Locke through the Enlightenment and beyond,' in Newton's Scientific and Philosophical Legacy, eds. by P.B. Scheurer and G. Debrock (Dordrecht: Kluwer Academic Publishers, 1988), 291-308.

43. For Sydenham, see Kenneth Dewhurst, Dr. Thomas Sydenham (1624-1689): His Life and Original Writings (London: The Wellcome Historical Medical Library, 1966); Andrew Cunningham, 'Thomas Sydenham: Epidemics, Experiment and the "Good Old Cause,"' in The Medical Revolution of the Seventeenth Century, eds. by French and Wear, 164-90. For Locke and Sydenham, Patrick Romanell, John Locke and Medicine: a New Key to Locke (New York: Prometheus Books, 1984); Kenneth Dewhurst, John Locke (1632-1704), Physician and Philosopher (London: The Wellcome Historical Medical Library, 1963).

accumulation of empirical observations, without any theory. Their hostility to empirical medicine was best expressed in the fever dispute of the 1690s in Edinburgh, of which Andrew Cunningham has made a penetrating account.[44] The pattern of 'Sydenham versus Newton' established there can also be found elsewhere.

Pitcairn's hammer to crush the empirical medicine was, again, the argument over certainty. In his lecture 'A Solution of the Problem concerning Inventors,' he divided the whole of human knowledge into two kinds: one is 'historical'; the other 'demonstrative.' The former could enjoy only limited certainty, as it was confirmed only 'by the light of other things,' i.e. 'upon the credit and ability of the reporter.' The latter, for example, 'the whole is greater than the part,' was the superior one, as it was 'demonstrated by its own evidence.'[45] And the goal of medicine should be the latter kind of knowledge, rather than Sydenhamian 'historical' knowledge. What matters was, Pitcairn maintained, whether a piece of knowledge was demonstrated or not: 'There is no one who will allow a geometrician to be the author of a theorem, which he has not demonstrated.'[46] Pitcairn was not saying here that empirical medicine was wrong, but saying that it lacked demonstration, the distinguishing sign of real knowledge.

Pitcairn's followers adopted the same strategy of degrading the medicine of the enemy as uncertain, and glorifying the medicine of their own as demonstrated and infallible. Cockburn followed Pitcairn's dichotomy of knowledge by dividing it into 'experimental' and 'sciental'; the example given for the former was 'such and such medicines are

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44. Andrew Cunningham, 'Sydenham versus Newton: the Edinburgh Fever Dispute of the 1690s between Andrew Brown and Archibald Pitcairne,' Med.Hist., Supplement No.1, 1981: 71-98.

45. Pitcairn, The Whole Works, pp.139-67. The original intention of this work was to establish Harvey's priority in the discovery of the circulation of blood.

46. Pitcairn, The Whole Works, p.156.

recommended for, and are good or bad in particular diseases' and it was 'the lowest piece of knowledge that can be expected from physicians.' The latter sort of knowledge would be achieved when the statement was established in an demonstrative manner, which was, thought Cockburn, 'as noble a piece of science as physick can be supposed to admit of.' John Quincy also followed the same strategy as Pitcairn's and Cockburn's, and made a tripartite distinction between 'historical' certainty, 'moral' certainty and 'demonstration,' among which the last should be 'our only guide' in the study of human body.[47] Their message was crystal-clear: their own mathematical physic was demonstrated and infallible; their enemy's empirical medicine was merely a collection of hearsay and dubious. As Richard Mead put it in a straightforward way, mathematical demonstration in medicine was 'the distinguishing mark of a physician from a quack.'[48]

However, their attack against unlearned quacks seems also to have embarrassed the learned physicians in Edinburgh, who had been their former allies in the 1690s' Edinburgh fever dispute, and probably, the physicians at the Royal College in London. The barely concealed message of iatro-mathematicians was that the differentiating mark between quacks and learned physicians was mathematics, rather than the knowledge of classical medicine which had long been the raison d'être of learned physicians.[49] Pitcairn's message was that those who relied on classical

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47. Cockburn, The Present Uncertainty of Medicine, p.2; Quincy, Medicina Statica, xiv-xviii.

48. Quincy, Medicina Statica, xi; Mead, Mechanical Account of Poisons, 'Preface.'

49. There were attempts to revive Hippocrates during the late seventeenth and early eighteenth century, through Sydenham, Baglivi, Hoffmann, and Boerhaave. See Giorgio Baglivi, The Practice of Physick, Reduc'd to the Ancient Way of Observations (London: A. Bell et al., 1704); Iain M. Lonie, 'Hippocrates the Iatromechanist,' Med.Hist., 1981, 25: 113-50. Andrew Cunningham, 'Medicine to Calm the Mind.' Baglivi's influence on English medicine can be seen in Thomas Apperly, Observations in Physick, Both Rational and Practical (London: W. Innys et al, 1731), xviii, in which

medical writings were basing their medicine on mere hearsay, which could achieve only the lowest degree of certainty. Anyone who wants to make use of classical medical writings can do so only by giving it a mathematical and demonstrative format. The reformatting of Hippocrates was done by John Freind, another supporter of Pitcairn, in his polemical edition of Hippocrates' fever tracts, as R.J.J. Martin has perceptively pointed out.[50] James Harvey (fl.1708), another iatro-mathematician also tried to introduce mathematical reasoning into the field of prognosis, in which Hippocrates and his followers were triumphant. Harvey accused the blind followers of Hippocratic prognosis as 'neglecting to inquiring into the reasons of observation, ... unalterable laws of motion and mechanism.'[51] The mathematical format was, they maintained, the only proper way to do medicine.

Small wonder that other physicians felt upset. In the 1700s Pitcairn went through bitter controversies with fellow physicians of the Royal College of Edinburgh, and his disciples in London did not find an easy path to the Royal College of Physicians, although the Royal Society, where Newton had already achieved eminence, welcomed their mathematical and Newtonian physic. It was only after the Newtonian coup at the Royal College around 1715 that Pitcairnian medicine was accepted there: his collected works were translated into English in 1715 and 1718, with the imprimatur of the Royal College, and the work of Bellini, the Italian

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the author wrote 'The two great pillars of physick, as the Italian Hippocrates says, are reason and observation.'

50. R.J.J. Martin, 'Explaining John Freind's History of Physick,' Stud.Hist.Phil.Sci., 1988, **19**: 399-418.

51. James Harvey, Praesagium Medicum, or the Prognostic Signs of Acute Diseases (London: G. Strahan, 1706), ix. There Harvey also wrote 'How conductive soever towards the improvement of medicine observations may be, yet they must be much more so, when founded upon solid reasoning,' i.e. 'the unalterable law of motion and mechanism.'

mentor of the iatro-mathematicians, was translated in 1720, again with the College's authorization.[52]

Although the intellectual rationale of this essentially political refusal of mathematical medicine has not been studied in depth, the issue of certainty in medicine was again at stake. In his Apollo Mathematicus, Edward Eizat attacked the very core of Pitcairn's research programme of certain medicine. Eizat accused Pitcairn of deism, for a deist denied revealed religion and the authority of the Bible by claiming that 'nothing is certain but a mathematical demonstration, and that all historical certainty amounts to no more but a meer conjecture, and that the best attested history is little better than a romance.' Pitcairn's denial of the authority of historical writing would, warned Eizat, 'strike at the root, and shake the foundation of all historical certainty, whether the history be sacred or profane.'[53]

Pitcairn's mathematical physic emerged from a tangle of factors, both intellectual and social, as we have seen above. The mathematics he absorbed from Newton, mainly via Gregory, provided a model for reforming medicine. However, Pitcairn's bold research programme was not solely due to Newton, just as Newton himself did not come out of the blue. Pitcairn's pursuit of certainty in medicine was an offshoot of the late-seventeenth-century English philosophical and epistemological

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52. Lorenzo Bellini, A Mechanical Account of Fevers (London: A. Bell, 1720). For the Newtonian coup at the Royal College around 1715, see Martin, 'Explaining John Freind's History of Physick'; Brown, 'The Mechanical Philosophy and the Animal Oeconomy,' pp.238-307. The full details of the Newtonian coup at the College remain yet to be studied.

53. Eizat, Apollo Mathematicus, pp.5 & 13. We know relatively little about the criticism against iatro-mathematicians. See a valuable exception of Philip K. Wilson, '"The Greatest Lies Can Be Invented": Daniel Turner on Mechanists, Quacks, and Atheists in Newtonian London,' an unpublished paper read at 'Day of Enlightenment,' a Conference held by the London Centre for History of Science, Medicine and Technology, 1 March, 1991.

arguments over certainty and probability, which had been incorporated into the scientific research programme at the Royal Society of London, and had just reached Edinburgh at the time when Pitcairn started his medical career. However, Pitcairn's introduction of mathematics was rather alien to the Baconian tradition of the Royal Society and to medicine in the late seventeenth century. The Pitcairnians' claim that mathematical and demonstrative certainty was the goal of medicine was largely a device for their polemic against other types of the study of medicine.

It was in this radically new scheme of mathematical medicine that their elimination of the problems of the soul/mind was pursued. The next section will look at their formulation of a medicine without the soul/mind.

Formulation of Pure Body as the Medical Object

a) Dualistic medicine at the turn of the century

In England in the late seventeenth and early eighteenth century, medical books published by authors outside the iatro-mathematical school were overwhelmingly 'dualistic,' in the sense that they framed the twofold compound of the mind and the body as a phenomenon which they had to examine, explain, and treat. There was almost no disagreement among medical writers of the time that man is made up of the soul and the body, although where the soul actually resides in the body was hotly disputed.[54] As Walter Charleton put it in his anatomical lectures at the Royal College

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54. The argument over the seat of soul was very extensive in late seventeenth and early eighteenth century English medical scene. Major contributors in the seventeenth century include: Descartes, Helmont, Willis, and French anatomists such as Daniel Duncan (1649-1735), Daniel Tauvry (1669-1701), and Raymond Vieussens (1641-1716). As for the history of brain and its functions in this period, see Edwin Clarke and Kenneth Dewhurst, An Illustrated History of Brain Function (Oxford: Stanford Publications, 1972), chaps. 7 & 9.

of Physicians in London, published in 1680, the broadest object of medicine was man, 'composed of two principal parts, a soul and body.'[55] Medicine then was a study of man, which was called 'anthropology.'[56]

The object of 'anthropology,' however, did not entirely square with that of medicine. As man is composed of two things, the soul/mind and the body, 'anthropology' consisted of two parts, the study of the soul/mind and the study of the body, which were often named 'psychology' and 'somatology.'[57] 'Psychology' was not a proper medical concern, and medical writers confessedly neglected purely mental phenomena which the body has nothing to do with. Charleton, for instance, stated that 'thinking, knowing, judging, reasoning, concluding, electing, willing... being remote from the province of anatomists, I leave them handled by philosophers inquiring into the nature of the soul.' Such things as are 'peculiar to the soul or mind' should be expelled from medical study.[58] English Medicine

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55. Walter Charleton, Enquiries into Human Nature in VI Anatomic Praelections in the New Theatre of the Royal College of Physicians in London (London: R. Boulter, 1680), 'Preface,' p.1.

56. See, for instance, Anthropologie Abstracted: or the Idea of Humane Nature (London: Henry Herrington, 1655), The content of this early genre of 'anthropology' has been little studied. Valuable but passing comment on the genre is found in Christopher Fox, 'Defining Eighteenth Century Psychology: Some Problems and Perspectives,' in Psychology and Literature in the Eighteenth Century, ed. by Christopher Fox (New York: AMS Press, 1987), 1-22.

57. See Oxford English Dictionary, 'anthropology,' etc.

58. Charleton, Enquiries into Human Nature, p.1. As for the dualism of seventeenth-century medicine, see John Henry, 'The matter of Souls: Medical Theory and Theology in Seventeenth-century England,' in Medical Revolution of the Seventeenth Century, eds. by French and Wear, 87-113; Johanna Geyer-Kordesch, 'Passions and the Ghost in the Machine: or What Not to ask about in Seventeenth- and Eighteenth- Century Germany,' in ibid., 145-63; Theodore M. Brown, 'Descartes, Dualism, and Psychosomatic Medicine,' in The Anatomy of Madness, 3 vols., eds. by W.F. Bynum, et al., (London: Tavistock, 1985-88), vol.1., 40-62.

at that time did not take a whole man as the object of its study; the whole man minus purely mental phenomena was the proper object.

For Charleton and Willis, the rest of the human actions was still essentially the phenomena which were simultaneously bodily and psychic. Charleton continued the lecture by specifying the proper object as 'the body, as organical and animated by the soul.' By the turn of the century, however, English medical writings had slid into the Cartesian scheme, apparently without visible fuss.[59] The soul was no longer omnipresent in physiology but was confined in a limited area of faculties, which was often referred to 'animal,' and the rest was 'pure body,' which has nothing to do with the soul. As I have discussed in Chapter one, Descartes distinguished three modes in human actions: purely mental phenomena (like thinking), purely bodily phenomena (like the movement of the heart), and the interaction between the mind and the body (sensation, imagination, and voluntary locomotion). The proper object of medicine was, many thought, the last two categories. William Cowper (1666-1709), a London surgeon and the author of a popular Anatomy of Human Bodies (1698), divided all function of animal body into 'natural functions which terminate in the body' and 'animal functions,' i.e. sense and voluntary motion, 'in which the soul is concerned.'[60] Many other works used a similar Cartesian framework. Some of these were written by English authors and others were translations from foreign writers, for example, Gideon Harvey (1640?-1700), Humphrey Ridley (1653-1708), Michael Etmueller (1644-

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59. This silent shift toward the Cartesian scheme is very difficult to explain. A lot of the publications I have consulted did not even mention the name of Descartes in proposing a Cartesian research programme of pure body and its interaction with the soul.

60. William Cowper, The Anatomy of Human Bodies (Oxford: S. Smith et al., 1698), 'Introduction,' and See also Thomas Nevett, The Rational Oeconomy of Humane Bodies, Wherein the Nature of the Chyle, Blood, Lymph, and Other Juices Is Discovered (London: T. Parkhurst, 1704), pp.27-28. Little is known about Nevett. He studied under P. Burman, professor of Botany at Leiden, and got an M.D. in 1703.

1683), Giorgio Baglivi (1668-1707).[61] English medical writings around 1700, unlike those in the Restoration period, formulated the object of medicine in a strictly Cartesian manner.

Within this Cartesian framework, the mechanism of the interaction between the mind and the body was a medical problem to be solved. Here again, however, one can detect an obvious departure from the Interregnum and Restoration Oxford medicine. Unlike Willis and Charleton, who invested so much energy in solving the problem of the interaction and gave the intermediate agent the central position in their physiology, Cowper and Baglivi were reluctant to touch the issue, abandoned any explanation, and were ready to skip the question. Cowper wrote:

> the manner ... how a material substance can affect and be affected by an immaterial, is obscure and scarce to be conceiv'd. Wherefore waving all precarious hypothesis, I shall confine myself to the description of such phenomena as are matters of fact, and undeniable, and leave the reader at liberty to erect what system he believes.[62]

Cowper here is not saying that mind-body interaction is impossible, but saying that explanation of it is beyond the scope of medicine. Interactive phenomena like sense and voluntary motion were proper objects of medical study, but their hidden mechanism was not.

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61. Gideon Harvey, The Vanity of Philosophy in Physick (London: A. Roper, 1699), esp., pp.141-66; Humphrey Ridley, The Anatomy of the Brain Containing Its Mechanism and Physiology (London: S. Smith et al., 1695), pp.157-200; Michael Ernst Etmueller, Etmueller Abridg'd: or a Complete System of the Theory and Practice of Medicine (London: E. Harris et al., 1699), esp., pp.487-556; Giorgio Baglivi, The Practice of Physick, esp. pp.177-89.

62. Cowper, The Anatomy of Human Bodies, 'Introduction.' See also Baglivi, The Practice of Physick, pp.182-83.

We can, therefore, find two major shifts in English medicine outside the iatro-mathematical school from the period of Willis and Charleton to the turn of the century. One is the appearance of 'pure' body purged of psychic issues as an object of medical study, and the other is the disappearance of the problem of explaining the way in which mind-body interaction takes place. Although these shifts seem to have been largely silent ones, the figure behind them was certainly Descartes. English medicine, which during the Restoration produced such powerful opponents to the Cartesian programme, seems by the end of the century to have adopted the basic scheme of the French philosopher. As for the cause of interaction, Descartes did not give any explanation and Malebranche made it a problem of divine intervention, a question beyond the scope of natural philosophy. Small wonder then that physicians were reluctant to step into the metaphysical domain of the interaction; it seems that they felt relieved to be free from the headache of explaining interaction.[63]

b) Medicine without soul by the iatro-mathematics

Despite their hostility to Descartes' speculative physiological theories, the iatro-mathematicians adopted a Cartesian formulation of the fundamental object of medicine, i.e. life. Unlike many of his contemporaries who still believed that life consisted in the union of the soul and the body, Pitcairn made it a purely bodily phenomenon,

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63. Some Parisian anatomists in the late 17th century adopted Malebranche's occasionalism and used it as a rationale for omitting the problem of the interaction. See, for instance, John Baptist Verduc, A Treatise of the Parts of Humane Body (London: W. Turner, 1701), p.38; Daniel Tauvry, New Rational Anatomy (London: D. Midwinter et al., 1701), p.184. The medical and religious milieu of French medicine at that time is nicely discussed in L.W.B. Brockliss, 'The Medico-Religious Universe of an Early Eighteenth Century Parisian Doctor: the Case of Philippe Hecquet,' in The Medical Revolution of the Seventeenth Century, eds. by French and Wear, 191-221.

identifying it with the circulation of blood.[64] In doing so, Pitcairn deprived Harveian circulation of both its initial Neo-Aristotelian content and of the chemical substructure provided by the Oxford physiologists, transforming the circulation into a matter of simple hydraulics. Pitcairn's hero was not the Harvey who claimed that the soul is in the blood, but the Harvey who did the mathematical calculations of the circulation of the blood.[65] Pitcairn declared, 'Those who enjoy this circulation [of blood] have life. Life itself is either this circulation, or this the measure of it.'[66] As is often the case with him, his remark was brief but precise, destroying the dualistic idea of life at one blow: life was no longer the soul-body compound, but the mechanism for keeping the soulless hydraulic machine going. Few medical theorists in his time were as thorough-going a Cartesian.

What about, then, the other Cartesian field of interactive phenomena? Here again, the attitude of the iatro-mathematicians was similar to those of Cowper and Baglivi discussed above: in the writings of the iatro-mathematicians, there is no attempt to provide any explanation of the cause of the interaction. In fact, there is a visible concern to avoid anything related to the soul/mind and, to build a framework in which they could concentrate on the hydraulics of the body. The iatro-mathematicians recast the ideas of the animal faculty and the role of the brain. The seat of the soul, which attracted so much interest from other contemporary

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64. See, for instance, Giovanni Alphonso Borelli, On the Movement of Animals, trans. by Paul Maquet (Berlin and Heidelberg: Springer-Verlag, 1989), pp.7-8 & 285; Charleton, Enquiries, p.378; Hoffmann, Fundamenta Medicinae, p.11; Verduc, Treatise, p.38. The role of the soul in Borelli's explanation of the motion of the heart is discussed in Roger K. French, 'Sauvages, Whytt and the Motion of the Heart: Aspects of Eighteenth-Century Animism,' Clio Medica, 1972, 7:35-54.

65. See Pitcairn, The Whole Works, pp.139-67, in which Pitcairn appreciated Harvey's demonstration of the circulation in mathematical and mechanical way.

66. Pitcairn, Philosophical and Mathematical Elements, p.7.

anatomists, was not discussed at all, and the Willisian localization of the faculties of the mind was dismissed as fanciful. The brain was, for them, simply a part of the hydraulic machine of the human body. James Keill wrote that 'all the use we know of the brain' was the secretion of the animal spirits from the circulating blood.[67] When Pitcairn defined animal faculties, he did not relate them to the operations of the soul, as had been commonly done; they were, for him, simply 'that power, which whilst the blood circulates within the brain, is exerted for the separation of a liquor [i.e. animal spirits] to be derived into the nerves.'[68] Thus brain was no longer the seat of the soul, but a sieve-like secretive organ. Likewise, the animal faculties were not a special domain where the soul and the body interact, but just a kind of hydraulic operation.

This does not mean that the iatro-mathematicians were Hobbesian materialists who denied the existence of the soul.[69] There is no passage where they denied that man has a soul, neither did they earn any contemporary notoriety for being materialist, as far as I am aware of. Indeed, they explicitly admitted the existence of soul in a human being. After claiming that the human body is a pure machine, Quincy wrote 'there is something further, besides physical agents, which has to do in a human body ... and that is the mind, soul, or power of thought, whatsoever is called.' In his Philosophical Principles of Natural Religion, Cheyne maintained that, 'voluntary motions of rational creatures are altogether unaccountable from the laws of mechanism.'[70] Although man's body is a pure hydraulic machine, man itself is not a Hobbesian pure mechanism.

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67. James Keill, The Anatomy of the Human Body Abridg'd, 1st ed. (London: Keblewhite, 1698), p.151.

68. Pitcairn, Philosophical and Mathematical Elements, p.50.

69. Thomas Hobbes, Leviathan, ed. by C.B. Macpherson (Harmondsworth: Penguin, 1968), pp.85-99.

70. Quincy, Medicina Statica, l-li; George Cheyne, Philosophical Principles of Natural Religion: Containing the Elements of Natural Philosophy (London: G. Strahan, 1705), p.29.

They did not, therefore, identify the interactive phenomena with bodily ones, neither did they reduce the former to the latter. What they actually did was to neglect the mental part of the interaction and limit their concern to the bodily and hydraulic part. At issue here was the question of how to delineate the proper scope of medical discourse, purging it of the metaphysical subject of the soul. George Cheyne, in his second edition of A New Theory of Fevers (1702), wrote, 'whatever be the principle of perception in human,... all sects of philosophers and physicians will agree that the diseases should be caused by changes in bodily fluid or solid.'[71] The hydraulic pathology was independent of psychic issues, hence there was no need to probe into them.

Accordingly, only the bodily changes involved in the mind-body interaction constituted a proper object of medical study. In brief, they put the role of the soul in parentheses and devised, so to speak, a black-box theory of soul. To know the role of the soul itself in the interaction is unnecessary; the knowledge of its bodily effects should be enough for the purpose of medical theory and practice. The soul no longer existed in the human being as a substance which required special attention by physicians, so their object of study consisted in purely bodily phenomena (life, blood circulation, etc.) and the strictly bodily side of the interactive phenomena.

The iatro-mathematicians' strategy to bracket the soul off is most obvious when they talked about the passions, which had been the major battlefield between Descartes and the Oxford physicians. The iatro-mathematicians were on the Cartesian side, in that they did not see anything like Willisian corporeal soul. There was no such thing like a special body. As the translators of Pitcairn's works wrote, 'the nature of

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71. Cheyne, A New Theory of Fevers, pp.5-6. Later Cheyne wrote that this work had been suggested by Pitcairn as a blow against his opponents in his controversy with Charles Oliphant. See George Cheyne, Dr. Cheyne's Own Account of Himself and His Writings, Faithfully Extracted from His Various Works (London: J. Wilford, 1743).

matter in all bodies is certainly the same, ... and therefore all bodies, how great or small soever, are liable to the common influences of motion and alteration.'[72] However, they did not take an entirely Cartesian viewpoint, for they did not see two things in the passions. They deliberately turned a blind eye to the role of the soul, and confined themselves to the bodily and hydraulic aspects of the passions. Pitcairn wrote, 'all the affections [of the mind] are then to be considered as the cause of distempers, when they may increase or diminish the bloods' circulation.'[73]

James Keill went even further in claiming that it was possible to find bodily equivalents of the passions and the physicians could look at them instead of the passions themselves. In the first edition of An Account of Animal Secretion, he wrote that the soul acts in the body only in 'the same way as if they had proceeded from other [bodily] causes.'[74] In the second edition of the same book, he developed the idea and devised an interesting metaphor:

> tho' it [the soul] does excite motions which disturb the oeconomy,... yet we know how to rectify their irregularities without any regard had to the soul; in the same manner exactly, as any one strikes back a ball sent from another's hand, with a force opposed to the ball, not to the hand that moves it.[75]

This metaphor says that physicians don't have to look at the soul (the hand), the original cause of the bodily change, but can do without it. The

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72. Pitcairn, Philosophical and Mathematical Elements, xxvii.

73. Pitcairn, Philosophical and Mathematical Elements, p.75.

74. James Keill, An Account of Animal Secretion, the Quantity of Blood in the Humane Body and Muscular Motion, 1st ed. (London: G. Strahan, 1708), 'preface,' p.vii.

75. Keill, Essays on Several Parts of the Animal Oeconomy, 2nd ed. The shift of Keill's idea about the attractions is quite well surveyed in Guerrini, 'James Keill, George Cheyne, and Newtonian Physiology.'

object of medical study and treatment is the bodily change (the ball). The game of medicine, claimed Keill, consists in hitting the ball, not the hand that has thrown the ball. The iatro-mathematician's game was quite different from, for example, the game played by Baglivi, who wrote 'diseases arising from care and anxiety of mind, will hardly be altered by medicines, unless the mind be restored to a state of tranquility.'[76] Baglivi obviously wanted to hit the hand.

John Quincy proceeded still further in specifying the bodily equivalents of the passions. Quincy stated that man's passions and dispositions of the mind gave 'that particular modification likewise, and degree of tension to the fibres, as cold bathing, a cold air, a moderate exercise, when we see them attended with the same consequences.' As such physical causes were known to 'draw up and shake the constituent machinulae of the fibres, promote their elastic powers, break the nervous juice finer,' so a physician, claimed Quincy, must postulate that 'these passions of the mind do also give the same modifications to the fibres, by which the same effects are produced.'[77] For Quincy, what mattered was only the bodily analogue of the passions, which were reproducible by mechanical causes: 'When any passions of the mind is said to have this or that effects upon the body, we ought to consider that passion only as a physical agent.'[78]

As I have examined in the previous section, this formulation of the object of medical inquiry as the pure body, with the soul put into parentheses, was connected with their methodology. It is understandable that the soul was the last thing that would occupy a solid place in their sense-based, demonstrative and mathematical medicine. It was by definition invisible and intangible; it did not follow the mechanical laws of motion and one could not calculate the mind in the same way as one could

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76. Baglivi, The Practice of Physick, p.187.

77. Quincy, Medicina Statica, pp.264-65.

78. Quincy, Medicina Statica, p.265.

the blood pressure. Small wonder that they claimed that any argument about soul/mind could not achieve the same certainty as that about pure body. Quincy epitomized the rationale of the certain and bodily medicine:

> Insomuch as a human body can be considered as a machine, and so far as the properties of all those things with which it may be influenced, can be known upon the same principles, so far it is attended with certainty; But as for what concerns it otherwise, with relation to such causes as cannot be brought about sensible evidences, it must always remain doubtful, beyond what common observation does assist us.[79]

As one could not expect mathematical certainty from any argument about the soul, so medical knowledge concerning the soul was to remain inferior, observational knowledge.

When they wrote about the passions, they tried to eliminate the psychic issue, using Newton as their model. They thought that Newton had achieved mathematical certainty by eliminating any speculation about the cause of gravitation, and by limiting his argument to the mathematical description of the phenomena. In the same manner, they wanted to do without the mental causes of bodily changes, and to concentrate on the visible phenomena of the bodily changes themselves. As is evident from the above quotes from Keill and Quincy, they tried to bracket the soul off and to look only at the bodily effects of the soul. The soul did not matter for their medicine, just as the physical cause of the gravitation did not matter for Newton's astronomy. The translator of Pitcairn's works wrote that the validity of astronomers' demonstration is not weakened, 'whether there by such things as substantial forms, or not, and whether there does exist a subtile matter, or not.'[80] In a similar manner, Keill wrote that the

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79. Quincy, Medicina Statica, li.

80. Pitcairn, Philosophical and Mathematical Elements, xxiii.

relevance of his mathematical medicine was 'not in the least altered, by that we have a principle within us, not subject to the law of motion.'[81]

There was, therefore, no room for the soul/mind in their carefully drawn out scope of medicine. Our next question is: how did they manage to explain 'mental' disorders in their rigorously bodily research programme?

Mental Diseases without Mind: the iatro-mathematicians on madness

a) Madness as diseases of senses and motion

Pitcairn's account of madness was in keeping with his research programme of purely bodily medicine: to understand madness he departed from the dualistic framework and cut off the mental part of the composition of madness. First of all, he did not recognize a category of diseases of the 'mind,' and transformed madness into a mere problem of hydraulics. In one of his Leiden lectures, he criticized the classification of diseases propagated by Sennert and others, and reformulated the Classical ideas about the causes of diseases (e.g. six non-naturals) around his notion of body as a hydraulic machine: 'all these affections are then to be considered as the cause of distemper when they may encrease or diminish the blood's circulation.'[82] This scheme was put forth in his dissertation 'Of the Division of Distemper.'[83] There Pitcairn claimed, 'all diseases are either from the fluids, or the canals, or compounded of both, or without the animal.'[84] In this sweeping reduction of diseases to hydraulic

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81. Keill, Essays on Several Parts of the Animal Oeconomy, 2nd ed., xv.

82. Pitcairn, Philosophical and Mathematical Elements, pp.72 & 75.

83. Pitcairn, The Whole Works, pp.252-71.

84. Pitcairn, The Whole Works, p.252.

problems, he did not allow any special independent status to what had been recognized as 'mental' diseases:

> Therefore to the diseases of the excretory ones belong sleepy symptoms, which are owing to the defect of the excretion in the brain, and the palsy from the same reason: but the epilepsy arises from the increase, and the vertigo from the defect. Madness from the increase.[85]

Madness, which had been the key species among the mental diseases, was nothing but a disease caused by the increase of fluid in the brain. In Pitcairn's new classification of diseases, there was no disease in which damage to the 'mind' was explicitly delineated.

Pitcairn not only abandoned the independent category of 'mental' diseases; he also gave significantly different definitions to diseases which had previously been classified as such. In his lectures on pathology at Leiden, he allotted one chapter to 'madness' in which he discussed mania and melancholia.[86] There he adopted, like Willis and Hoffmann, the recently established Cartesian model of madness as illusion, and even more forcibly put forth the parallelism between illusion/dream and madness. In dream, Pitcairn wrote, one has ideas of things 'wherewith we have been acquainted,' variously compounded and mixed with each other,

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85. Pitcairn, The Whole Works, pp.252-53. Latin original for the term 'madness' is 'mania.' See Archibald Pitcairn, Opera Omnia Medica (Leiden: J.A. Langerak, 1737), p.319. Pitcairn's idea of classifying whole diseases only along the hydraulic mehcanism seems to have come from Bellini. Bellini, however, wrote 'a delirium happens from the same diminution of the spirits in quantity.' Bellini, A Mechanical Account of Fevers, pp.255.

86. Pitcairn, Philosophical and Mathematical Elements, 'Of Madness,' pp.186-93.

and caused by the 'various repercussions of the animal spirits.'[87] This was also the case with madness:

> A delirium therefore is the dream of waking persons, wherein ideas are excited without order or coherence, and the animal spirits are drove into irregular fluctuations. If the cause inducing a delirium be of that nature, it can excite idea or motions of a lively and considerable impetus without any manner of certainty and order.[88]

There was nothing new in comparing madness to illusion/dream, for it had long been maintained by Descartes, Boyle, Willis. The passage quoted above, however, is saying two new things: one is the addition of the problem of motion, and the other is the omission of any damage to the higher faculty.

I shall first deal with the new dimension of disordered motion in madness. It had long been noted that a madman shows disorderly motion with extraordinary strength, yet it had not constituted the central problematics of medical theory on madness: madness had been first and foremost a problem of intellectual disorder. For Pitcairn, incoherent and violent motion in delirium shared a central place with disordered idea: delirium consisted in 'idea or motions of a lively and considerable impetus without any manner of certainty and order [my emphasis].' This binary characterization of madness as disordered idea and/or motion fitted in very well with the role of the animal spirits in the physiology of the iatro-mathematicians, for they were regarded as the vehicle of both sensation and muscular motion. When they flow from the sensory organ to the brain, sensation takes place and when from the brain to muscles, motion

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87. Pitcairn, Philosophical and Mathematical Elements, p.186.

88. Pitcairn, Philosophical and Mathematical Elements, p.186.

is effected.[89] If one suffered, the other would naturally share the disorder.

Moreover, a mechanical account of muscular locomotion and its strength was one of the foremost achievements of mechanical and mathematical medicine, best exemplified in Borelli's De Motu Animalium and in Mead's and Henry Pemberton's 'Introduction' to the posthumous edition of William Cowper's Myotoma Reformata.[90] The mathematical characterization of mad motion reached grotesque proportions in Edward Strother's (1675-1737) Criticon Febrium (1718). Although Strother apparently had no personal connection with Pitcairn and his circle, the work on fever is aggressively mathematical and shows great reverence for Pitcairn.[91] There he, like Pitcairn, constructed a hydraulic pathology of various disorders, based on the quantity and pressure of blood flowing, and gave the following account of madness:

> If the blood be so vitiated, as that the strengths are augmented or diminished, 'tis the same thing as if the blood offended in quantity. Suppose a person under a disease where the strength are much augmented, as madness, and such-like, from some acrimony of the blood; 'tis the same thing as if the blood were augmented. So that,

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89. See, for example, Pitcairn, Philosophical and Mathematical Elements, p.59: 'animal motion is effected by an efflux of spirits into the muscles, but sensation is performed by a reflux of those animal spirits towards the brain, the origin of the nerves.'

90. Borelli, On the Movement of Animals; William Cowper, Myotomia Reformata: or an Anatomical Treatise on the Muscles of the Human Body (London: P. Knaplock, 1724), 'Introduction,' by Henry Pemberton.

91. Edward Strother, Criticon Febrium (London: C. Rivington, 1718). He studied at Christ's College, Cambridge, got an M.D. at Utrecht in 1720, and was elected FRCP in 1721. At one point he disagreed with Pitcairn, but 'with deference to the manes of so great a man.' (p.37) Quincy, however, was extremely hostile to this work. In his Lexicon Physico-Medicum: or, a New Physical Dictionary (London: A. Bell, 1719), xv-xvi, he maintained that Criticon Febrium is as hypothetical and 'vague and delusory' a book as 'Agrippa's Occult Philosophy.'

> suppose a person has in his vessels 20 pounds of blood, and the strengths equivalate 5 pounds; then if we consult Sir Isaac Newton's Law of Motion, it will stand thus ac=m, or 20 multiplied by 5, is equal to 100lb. which this person can lift. If then any one falls ill of Madness, and can lift up 140lb. then the Moment of Strength in each pounds of Blood, amounts to 7lb. for 20 multiplied by 7, is 140.[92]

In this unashamedly Newtonian account of madness, the only aspect of madness taken into account was its extraordinary strength, which could be calculated. It is an example of the iatro-mathematical explanation of madness in its extreme form.

Secondly, an implicit and silent shift in Pitcairn's formulation of madness was the absence of issues related to the higher mental faculties, such as reasoning. Essentially, what Pitcairn was saying was not very much different from Willis, and even from earlier medical writers: madness was a disorder in our activity of image-making. However, Pitcairn omitted any damage to reasoning, which was involved in the former accounts of madness. In the early seventeenth century, John Jonston (1603-75), for example, wrote:

> A Deliry is a depravation of the phantasie, and the rationation faculty, arising from the bringing and presenting of an absurd and inconvenient phantasme.[93]

Although both Pitcairn and Johnston claimed that in delirium false and confused ideas were excited in the mind, Pitcairn did not mention the deprivation of any mental faculties, which constituted the principal part of

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92. Strother, Criticon Febrium, p.20.

93. John Jonston, The Idea of Practical Physick in Twelve Books, trans. by Nicholas Culpeper (London: Peter Cole, 1657), p.19.

Johnstone's statement. Johnstone's language was framed around the faculties of the soul, while Pitcairn's was that of hydraulics. The iatro-mathematician's explanation of madness stopped just when the false ideas are produced in the mind, and therefore omitted the consequent depravation of the mental faculties. Pitcairn's disciples seem to have followed their mentor and kept silence on the issue of mental faculties.[94] Although it is dangerous to argue from the absence of evidence, the iatro-mathematicians' omission of any issues concerning higher mental faculties from their account of madness was in keeping with their general strategy of practicing purely bodily medicine, with the soul excluded from the scope of medical discourse. It seems likely that this omission formed a part of their reform of the extent of medical knowledge.

In brief, a madman constructed by the iatro-mathematicians was a disordered hydraulic machine, in which high blood pressure and a disordered flow of the animal spirits gave rise to erroneous sensations and incoherent and extraordinarily strong movement of its limbs. Reference to damage of the mind was minimized, or even negated. The iatro-mathematicians, in a word, managed to produce a 'psychiatry without mind.'

b) Richard Mead on madness as reflex action

Psychiatry without mind was epitomized by Richard Mead, one of the most prominent physicians of his age and in his youth the most staunch supporters of Pitcairn's mathematical physic. In the second essay of his extremely successful Mechanical Account of Poisons in Several Essays, he gave an account of the effect of poisons present in the bites of the

94. See, for example, James Harvey, Praesagium Medicum, 'Of a Delirium and Frenzie,' pp.4-14.

tarantula spiders and mad dogs, both of which he understood as species of delirium.[95]

Mead put these two sorts of poisons under the same head, since both of them 'induce a particular delirium sui generis, attended partly with maniacal, partly with melancholy symptoms.'[96] Mead's idea of madness was in strict keeping with that of Pitcairn, stressing both false ideas and disorderly motion. Moreover, establishing a close tie between the two elements, Mead employed the notion of what is today called reflex motion, which was forcibly propagated by, inter alia, Descartes.

Mead started by making a mechanical account of perception and voluntary motion, in which the soul is conscious of perceiving the idea, and, in response to this perception, commands the animal spirits to flow into muscles to perform some desired actions. When a certain set of the perception and the motion is repeated and becomes a habit, Mead continued, the mind retreats from the scene and the motion comes to be performed unconsciously and involuntarily: 'at length by a kind of natural habitude, without the intervention of the reasoning faculty, representations made to the mind do immediately and necessarily produce suitable motions in the bodily organs.'[97] Although Mead did not give any reference, here he was obviously following the idea of reflex movement, which was propagated by Descartes, Willis, and Borelli.[98]

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95. As Mead admitted himself, his description of the bite of the tarantula owes substantially to Giorgio Baglivi's account of it found in Baglivi, The Practice of Physick, pp.345-409. And the bite of a mad dog was very much a fashionable topic in the medical profession then. The Philosophical Transactions in this period included a lot of articles on the topic. Further study into the intellectual and social background of the rise of the discourse on rabies seems necessary.

96. Mead, Mechanical Account of Poisons, pp.57-8.

97. Mead, Mechanical Account of Poisons, p.63.

98. Probably Mead's direct source was Borelli's De Motu Animalium (1680-81), which he mentioned several times. See Borelli, On the Movement of Animals, pp.285-286. As for Descartes' and Willis's notion

Mead's originality lies in connecting the concept of reflex movement and the senso-motory account of madness. The reflex is, Mead claimed, exactly what happens to a madman. The irregular representation of the ideas, triggered by disordered flow of the animal spirits, generated incoherent bodily motions:

> a delirium is the representation and various composition of several species to the mind without any order or coherence; together, at least most commonly, with irregular, or as it were, undesigned motions of the body; that is, such a wandering and irregular motion of the nervous fluid, whereby several objects are represented to the mind, and upon this representation divers operations performed by the body, tho' those objects are not impressed upon the organs, not those operations or motions deliberately commanded by the soul.[99]

Delirium was, for Mead, a disordered involuntary reflex motion, which was produced without any intervention of the mind. In this scheme for understanding madness, there was no place for the soul/mind. Accordingly, Mead claimed that although delirium was called 'perturbation of the mind,' 'it is very manifest that in reality the defect is not in the rational but corporeal part.'

Although this statement may appear similar to the earlier claims of incorruptibility of rational and incorporeal soul per se, the contents of these claims were different. The rationale of the intactness of the soul was religious and metaphysical: ontological separateness of the rational and immortal soul from perishable matter did not permit any disorder of the soul itself. Mead, on the other hand, did not base his claim on metaphysical argument, and invented a model of madness from which the

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of reflex, see Georges Canguilhem, La formation du concept du réflex aux XVIIe et XVIIIe siècles (Paris: J. Vrin, 1977), pp.27-78.

99. Mead, Mechanical Account of Poisons, p.64.

disturbance of the soul was omitted from the beginning: mad and incoherent motion was not the product of a wrong mind, but of wrong hydraulics.

This point is made clear in his account of rabies, the delirious disease caused by the bite of a mad dog. Mead admitted that there was a dispute among physicians over the question of whether rabies could be properly called a delirium. The main objection against classifying rabies as a delirium was, Mead wrote, that the patients who suffered from rabies or hydrophobia did sometimes show the sign of reason. For Mead, who recast the model of delirium into reflex action with no place for the soul, the argument of the opponents provided another reason to count rabies as delirium and to enforce his purely bodily model of delirium:

> I know indeed that the main and most plausible abjection against delirium is this, that the patient himself does reason against his timorousness, ... Which from what I have already said concerning a delirium, appears to be very consistent with it, nay, convinces that there is the greatest degree of it in this case: in as much as that is not a distemper of the mind but of the body.[100]

This claim, that delirium is not a distemper of the mind but of the body, is repeated again and again in the Mechanical Account of Poisons, and provides a sharp contrast to the earlier idea that madness was a disorder in which the higher mental faculty of reasoning is damaged. Mead's message was that the rational faculty of a madman is not disordered and that this shows the more clearly that madness is not a disorder of the mind, but of the hydraulic automaton.[101]

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100. Mead, Mechanical Account of Poisons, p.82.

101. Likewise, Locke argues that madman does not lose his reasoning. See Essay, 2.11.13; Dewhurst, John Locke, pp.70, 71, 89-90. Dewhurst's misleading translation in one of the passages related with the issue of madness has been pointed out by John P. Wright, 'Association, Madness,

Accordingly, Mead framed his explanation of the symptoms of the bites of the tarantula and mad dogs around the issue of hydraulics. When the poisons were infused into the blood vessels, a cohesion of globules took place, forming numerous clusters. This makes the blood pressure unequal and irregular and 'the fluid of the nerves must necessarily be put into various undulatory motions.'[102] Under such a circumstance:

> the most light occasion will make as real a reflux and undulation of [the nervous fluid] to the brain; that is, will present as lively and vivid species there, as the strongest cause and impression can produce in its natural state and condition. Nay, in such a confusion, the [animal] spirits cannot but sometimes, without any manifest cause at all, be hurried towards these organs, to which at other times they have bin most frequently determined.[103]

Hence, the patient shows such incoherent symptoms such as 'extreme pleasure at what is but a trivial entertainment, ... wonderful sadness at anything, ... ridiculous laughter, obscene talks.' All these were not the product of the mad mind, but were done without any mental intervention. Expulsion of the mental issue seems to have reached at pinnacle with Mead's model of madness as a disordered reflex motion.

In concluding the chapter, I would like to emphasize again that Pitcairn's pursuit of certainty in medicine was very much a product of the late seventeenth-century English intellectual milieu, which was centred on the Royal Society of London and tried to do without philosophical speculations and to base scientific discourse on sensory knowledge. The

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and the Measures of Probability in Locke and Hume,' in Psychology and Literature in the Eighteenth Century, ed. by Fox, 103-27, esp., note 12.

102. Mead, Mechanical Account of Poisons, pp.67-68.

103. Mead, Mechanical Account of Poisons, pp.69-70.

Pitcairnians sought a certain medicine, combatting the empirics and differentiating their own medicine from that of the medical establishment. Following Newton, they introduced mathematics into medicine, and so doing they re-designed the scope of medical knowledge, from which they tried to expel any forms of dubious knowledge.

Knowledge about the soul/mind, which at that time was increasingly considered to present an insoluble problems by doctors outside the iatro-mathematical school, was deliberately expelled from the proper scope of medicine. Thus the iatro-mathematicians consolidated the tendency to depart from Willis-like speculations on the role of the soul, or quasi-soul, in the body. In adopting the model of life as a purely bodily phenomenon, rather than a dualistic one, they firmly established Descartes' research programme, although ironically they heavily criticized its speculative aspects. Moreover, by excluding the role of the soul in interactive phenomena like the passions, they marked out a medical research programme which was concerned only with the body. This definition of pure body as the only proper object of medicine was directly connected with their pursuit of certainty in medicine.

In the course of this research programme, they formulated a new model of madness. Unlike the dualistic framework, which understood madness as a disorder of the mind caused by bodily disturbances, they described madness with almost no recourse to the faculties of the mind per se. Their madness was a disorganization of hydraulic automata, characterized by wrong sensation and incoherent motion, and was epitomized in Richard Mead's model of madness as an incoherent reflex movement.

The research programme of the 'mathematical physick' did not last long, however. Even in the heyday of the school, about 1700-1720, a considerable number of medical publications in England did not conform to the aims of the school and Pitcairn was a target of open criticism by some of his Scottish fellow physicians. Towards the end of this period, the

militant proponents of mathematical physic were leaving the scene: Pitcairn, their leading star, died in 1713, and Keill in 1719. Many members of the school had ceased to pursue their former goal of 'mathematical physick' by 1720. Mead established a lucrative medical practice in London and fashioned himself more as a connoisseur than as a radical theoretician: Cheyne, after physical breakdowns in 1705 or 1706, stayed away from the scientific community of London, and wrote books addressed to a lay audience rather than to his professional colleagues.[104]

By 1730, the impetus to do medicine in a rigorous mathematical way had declined. In 1731, Thomas Apperly (1674-1735), an M.D. from Cambridge, stated that 'mathematical learning has added little to the most useful, i.e. the practical part of physick,' although he still showed some reverence to Pitcairn.[105] Thomas Morgan (d.1743), a self-styled M.D., went still further, turning a scornful shoulder to Bellini, the Italian patron saint of the British iatro-mathematical school, and writing that Bellini was 'the principal corrupter of medicine.'[106] Francis Clifton (d. 1736), an M.D. from Leiden, epitomized the way in which the iatro-mathematical bold research programme turned sour. He wrote that, 'the knowledge of the circulation, and some other things lately discovered, is not of so much importance as was at first apprehended; ... we are but little the better for

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104. See Zuckerman, 'Dr. Richard Mead,' pp.132-85; Meade, In the Sunshine of Life, pp.83-100; Roy Porter, 'Introduction' to Cheyne, The English Malady.

105. Apperly, Observations in Physick, Both Rational and Practical, p.13. Although Apperly admitted that Pitcairn 'is almost everywhere, and often justly exploding the ancient definitions in physick,' he could not see that 'medicine, strictly speaking, will be much advanced thereby.' For a criticism in the same vein, see [Charles Oliphant?], A Refutation of the Short Answer..., pp.15-16.

106. Thomas Morgan, The Mechanical Practice of Physick (London: T. Woodward, 1735), xiii. For biography of Morgan, see DNB. Morgan was a prolific Deistic writer, whose medical and philosophical ideas remain to be studied.

these discoveries, and in some degree worse.'[107] Theodore Brown listed several reasons for the decline of the iatro-mechanical school: the emphasis on experiment revived; Boerhaave's eclectic medicine ascended to the new intellectual authority of English medicine; the anti-theoretical, 'historical' method of Sydenham, the chief target of the iatro-mathematicians, gained popularity; a vitalistic or even animistic tinge was added to English medical writings.[108]

The influence of the eclectic Boerhaavian medicine on English medicine is best exemplified in A Treatise on the Non-naturals, in Which the Great Influence They Have on Human Bodies Is Set Forth and Mechanically Explained (1738), which was written by John Burton (1710-1771), Boerhaave's student at Leiden.[109] Although Burton followed the programme of mechanical medicine (as the title suggests), and attacked Aristotelian and chemical medicine, as well as the pure empiricists who 'rejecting all reasoning in Physic, mock at any rationale on drugs or diseases, and patronize experience only,' he did not share the enthusiasm for introducing mathematics into medicine.[110] Apparently with Mead in mind, he wrote:

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107. Francis Clifton, The State of Physick, Ancient and Modern, Briefly Consider'd (London: John Nourse, 1732), p.122. Clifton got an M.D. at Boerhaave's Leiden and became an F.R.C.P. in 1729. He was an admirer of Hippocrates and Baglivi for their collect observation (ibid., pp.125-27, 163-64.), and proposed for printing all the works of Hippocrates in 1732.

108. Brown, 'Animal Oeconomy,' pp.354-366.

109. John Burton, A Treatise on the Non-Naturals, in Which the Great Influence They Have on Human Bodies Is Set Forth and Mechanically Accounted for (York: A. Staples, 1738). Burton learned under Boerhaave in 1730, and the book is aggressively Boerhaavean. He dedicated the book to Boerhaave himself, and wrote in preface that 'the book is a mere collection from others, or what I have pick'd up from Boerhaave's lectures and conversation.'

110. John Burton, A Treatise on the Non-Naturals, pp.5-7. Like Boerhaave, he thought learned medicine needs both experience and natural philosophy: 'Experience without theory will never make a safe, and skilful physician.' (Ibid., p.7.)

> I can't agree with a very great man, who says, that a thorough knowledge of the mathematics, ought to be made the distinguishing characteristic of a physician from a quack; for mathematics can give us no more help in the cure of disease, than they can in explaining the mysteries of revealed religion.[111]

Here mathematics is neither beneficial to the therapeutics, nor a proper model of medicine. Although Burton, like Pitcairn, maintained that medical science 'must proceed upon demonstrative principles; because it is conversant with objects discernable only by the evidence of sense,' this evidence of the senses did not constitute 'absolute certainty' as Pitcairn insisted. Rather,

> it is impossible to discover certainly the natural dimensions of the canals in a human body, even in a healthy state, much less is possible to determine accurately their various degrees of contraction and dilatation, which may, and actually do produce diseases.[112]

One can achieve highly reliable mechanical medicine by experience and proper natural philosophy: mathematical certainty is not necessary for the purpose.

With the decline of iatro-mathematics in the 1720s, the argument about the soul/mind made a revival, and a dualistic formulation of the object of medical study was re-introduced. One of the clearest signals of this shift came from Nicholas Robinson (1697-1775), who was as staunch

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111. Burton, A Treatise on the Non-Naturals, pp.10-11. The authority he cited for that claim was Baglivi: 'I rather agree with Baglivi, that mathematics, rhetoric, astronomy, etc. are as conductive to an exact history and cure of diseases, as the art of painting is to music.' (Ibid., p.11.)

112. Burton, A Treatise on the Non-naturals, pp.11-13. Burton cited 'Dr. Beal' as the authority of the claim, whom I could not identify.

an admirer of Newton as Pitcairn and his followers had been, but had apparently no connection with the iatro-mathematical school. In his A New Theory of Physick and Diseases, Founded on the Principles of the Newtonian Philosophy (1725), Robinson re-introduced the twofold human being as the object of medical study. He wrote that human 'consists of two parts, matter and thought, or soul and body, evidently distinct in all operations,' with no effort to establish a single object of pure body.[113] In his A New System of the Spleen, Vapours, and Hypochondriack Melancholy, published four years later, the challenge to Pitcairn's certain and bodily medicine took an unmistakable form: Robinson introduced the discourse on the mind, and defied the former rigorous requirement of certainty. About one-third of this book is dedicated to the consideration of 'the nature of thought,' e.g. perception, reason, understanding, memory, will, all of which were removed by the iatro-mathematicians from the scope of medicine. In doing so, Robinson was quite well aware that he 'had got into a scene of nature, where it was highly difficult to discover the least sure footing, ... and where the nature of the subject itself scarce admits of evidence, much less demonstration [my emphasis].'[114] He was, however, resolute in his attempt to do medicine where the iatro-mathematicians dared not tread. He claimed that one should be content with 'the most seeming probability [my italics], where I cannot discover demonstrative evidence.'[115] Thus rigorous requirements of a certain medicine based on mathematical demonstration and restricted to the pure body disappeared. In its place, one could claim 'probable' medical knowledge about the mind. The bold attempt to construct a psychiatry without mind seems to have quickly faded. In the following chapters I will

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113. Nicholas Robinson, A New Theory of Physick and Diseases Founded on the Principles of the Newtonian Philosophy (London: C. Rivington, 1725), pp.10-11.

114. Nicholas Robinson, A New System of the Spleen, Vapours and Hypochondriack Melancholy (London: A. Bettesworth, 1729), p.3.

115. Robinson, A New System of the Spleen, pp.3 & 9-10.

examine the content and the structure of the restored psychiatric discourse about 'mental' diseases.

Chapter Three

Hysteria and Hypochondria in Early Georgian England

Introduction

a) New mental diseases: hysteria and hypochondria

From around 1720, the English medical scene saw a rapid growth of literature on nerves and nervous diseases. Among the nervous disorders, hysteria and hypochondria, or what was called 'spleen,' 'vapours,' and 'hyp' at that time, were the most fashionable topic. A mere glance at the medical monographs on the diseases published around 1720 to 1740 is enough to show the great vogue of discussion of the diseases.[1] The hysteric and hypochondriac disease was discussed extensively in the general medical works in the period as well.[2]

Although one can trace a long history of the diseases back to Hippocratic medicine, medical historians now agree that a drastic change

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1. Bernard Mandeville, A Treatise of Hypochondriack and Hysterick Disease, 2nd ed. (London: J. Tonson, 1730); William Stukeley, Of the Spleen (London: for the Author, 1722); Richard Blackmore, A Treatise of the Spleen and Vapours: or Hypochondriacal and Hysterical Affection... (London: J. Pemberton, 1725); Nicholas Robinson, A New System of the Spleen, Vapours, and Hypochondriack Melancholy (London: A. Bettesworth, 1729); Richard Browne, Medicina Musica: or a Mechanical Essay on the Effects of Singing, Musick and Dancing on Human Bodies (London: John Cooke, 1729); George Cheyne, The English Malady: or, a Treatise of Nervous Diseases of All Kinds, as Spleen, Vapours, Lowness of Spirits, Hypochondriacal, and Hysterical Distempers (1733), intro. by Roy Porter (London: Routledge, 1990); Malcolm Flemyng, Neuropathia: sive de Morbis Hypochondriacis et Hystericis, Liber Tres, Poema Medicum (York: for the Author, 1740).

2. John Allen, Synopsis Medicinae: or a Summary View of the Whole Practice of Physick, 2nd ed., 2 vols. (London: J. Pemberton et al, 1733), vol.1, pp.195-206; Francis Fuller, Medicina Gymnastica: or, Every Man His Own Physician, 7th ed. (London: E. Carll et al., 1740), pp.121-39; Charles Perry, A Treatise of Diseases in General, 2 vols. (London: T. Woodward et al., 1741), vol.1, pp.161-66 and vol.2, pp.49-69.

in the etiology of them took place during the seventeenth century.[3] The works of Edward Jorden, Charles Lepois (1563-1633), Nathaniel Highmore (1613-85), and above all, Thomas Willis and Thomas Sydenham, transformed the seat of hysteria from the womb to the brain and nervous system, dissociating the nature of the disease from frustrated sexual desire.[4] Their works also included a parallel change in the understanding of hypochondria: the theory of the putrid fume arising from the spleen ('the vapours') was dismissed as imaginary and was replaced by the theory of cerebral and nervous origin.[5] Moreover, physicians at that time associated hysteria and hypochondria so tightly that they regarded the diseases as an essentially indistinguishable pair, abandoning the rigid distinction between female hysteria and male hypochondria.[6] And most importantly, the aspect of mental affliction of the diseases was re-discovered during the period. Sydenham wrote that in hysteria 'the mind is still more disordered [than body],' which statement was often cited in the early Georgian medical writings.[7]

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3. Ilza Veith, Hysteria: the History of a Disease (Chicago: The University of Chicago Press, 1965), pp.120-54; idem, 'On Hysterical and Hypochondriacal Afflictions,' Bull.Hist.Med., 1956, **30**: 233-40; Jeffrey M.N. Boss, 'The Seventeenth-Century Transformation of the Hysteric Affection, and Sydenham's Baconian Medicine,' Psychological Medicine, 1979, **9**: 221-34; John P. Wright, 'Hysteria and Mechanical Man,' Jour.Hist.Ideas, 1980, **41**: 233-47.

4. Willis's dispute between Highmore and Sydenham's debt to Willis are nicely discussed in Hansruedi Isler, Thomas Willis 1621-1675: Doctor and Scientist (New York: Hafner Publishing Company, 1968), pp.127-40.

5. Hypochondria in the seventeenth century has been understudied. See the works cited in notes 3 and 4; Oskar Diethelm, Medical Dissertations of Psychiatric Interest Printed before 1750, (Basel: S.Karger, 1971), pp.85-96.

6. Veith, Hysteria, p.129; Isler, Thomas Willis, pp.139-41.

7. Cited in Hunter and Macalpine, Three Hundred Years, p.222. As for hypochondria, there existed a long tradition of associating it with melancholy, and 'hypochondriacal melancholy' was almost always one of the subspecies of melancholy. See Stanley W. Jackson, Melancholia and

The vogue of nervous disease as a medical topic continued well into the latter half of the eighteenth century in Britain. The physiology and pathology of nerves were the focus of attention especially for the medical professors at Edinburgh, then being established as one of the centres of medical study in Europe. Robert Whytt (1714-1766), Professor of medicine there, published Observations on the Nature, Causes and Cure of Those Diseases Which Are Commonly Called Nervous, Hypochondriac or Hysteric in 1764 and William Cullen (1710-1790), partly depending on his predecessor Whytt, developed new physiology and pathology of nerves and coined the term 'neurosis.'[8]

The early Georgian writings on hysteria and hypochondria fell in the lacuna between the twin peaks of Willis-Sydenham and Whytt-Cullen, the so-called 'lost half century of British medicine.'[9] Unlike the four medical giants who wrote for their medical colleagues and students, many of the early Georgian writers on hysteria and hypochondria had lay general readers in mind and wrote their works as advice manuals: Richard Blackmore (1650-1729) intended his Treatise of the Spleen and Vapours for 'intelligent persons, though not great scholars or student in physick'; George Cheyne's (1671?-1743) The English Malady was initially written as 'a legacy and dying speech, only to my fellow sufferers under these

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Depression: from Hippocratic Times to Modern Times (New Haven: Yale U.P., 1986), pp.274-310.

8. Roger French, Robert Whytt, the Soul, and Medicine (London: The Wellcome Historical Medical Library, 1969), pp.31-45; José M. López Piñero, Historical Origins of the Concept of Neurosis, (Cambridge: Cambridge U.P., 1983), chap.1; Christopher Lawrence, 'The Nervous System and Society in the Scottish Enlightenment,' in Natural Order: Historical Studies of Scientific Culture, eds. by Barry Barnes and Steven Shapin (Beverly Hills, Calif.: Sage Publications, 1979), 19-40.

9. W.R. Le Fanu, 'The Lost Half-Century in English Medicine, 1700-1750,' Bull.Hist.Med., 1972, **46**: 319-48.

complaints.'[10] From Whiggish point of view, they were second-rate personnel, overshadowed by both their predecessors and antecedents, and wrote for scientifically inferior audience. When Whiggish medical history was dominant, they were largely neglected. Instead, literary historians took the lead, examining the background of literary representation of melancholy and sensibility.[11]

Recently, Roy Porter has started to provide some fresh insights into the Augustan medical concern on hysterical and hypochondriacal disorders, putting them in the broader social and ideological situation of the period.[12] His insights particularly relevant to this chapter include: his emphasis on the somatic nature of the understanding of hysteria and hypochondria at that time; his analysis of ideological construction of the

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10. Blackmore, A Treatise of the Spleen, vi; Cheyne, The English Malady, ii.

11. The literary history of the nerves and nervous diseases of the period include: Cecil A. Moore, Backgrounds of English Literature 1700-1760 (Minneapolis: The University of Minnesota Press, 1953), pp.179-235; Oswald Doughty, 'The English Malady of the Eighteenth Century,' The Review of English Studies, 1926, 2: 257-69; John F. Sena, 'The English Malady: the Idea of Melancholy from 1700 to 1760,' Princeton University, Ph.D., 1967; Michael DePorte, Nightmares and Hobby-Horses: Swift, Sterne, and Augustan Idea of Madness (San Marino, Calif.: Huntington Library, 1974); G.S. Rousseau, 'Nerves, Spirits, and Fibres: Towards Defining the Origins of Sensibility,' in Studies in the Eighteenth Century, eds. by R.F. Brissenden and J.C. Eade (Toronto: University of Toronto Press, 1976), 137-57; John Mullan, 'Hypochondria and Hysteria: Sensibility and the Physicians,' The Eighteenth Century: Theory and Interpretation, 1984, 25: 141-77; Carol Houlihan Flynn, 'Running Out of Matter: the Body Exercised in Eighteenth-Century Fiction,' in The Languages of Psyche: Mind and Body in Enlightenment Thought, ed. by G.S. Rousseau (Berkeley: University of California Press, 1990), 147-85.

12. Roy Porter, Mind-forg'd Manacles: a History of Madness in England from the Restoration to Regency (London: Athlone Press, 1987), pp.81-9; idem, 'The Rage of Party: a Glorious Revolution in English Psychiatry?' Med.Hist., 1983, 27: 35-50; idem, 'Introduction' to George Cheyne, The English Malady; idem, 'Civilization and Disease: Medical Ideology in the Enlightenment,' in Culture, Politics and Society in Britain, 1660-1800, eds. by Jeremy Black and Jeremy Gregory (Manchester: Manchester U.P., 1991), 154-83.

hysteric body; the characterization of the diseases as the malady of the newly arrived consumer society, or the disease of civilization.[13]

b) Problems: Mind and Body in the Enlightenment

The texts I am going to deal with in this chapter are very different from the medical writings I have examined in the previous chapters. First, they were not the product of any single medical 'group' of relatively solid identity, such as Oxford physiologists or the Pitcairnian iatro-mathematicians. Although it is almost certain that they knew each other's work, they did not frequently cite each other, neither does it seem that they formed a group. We are not looking at 'isms,' or, specific medical-scientific research programmes.

Secondly, they wrote largely for general readers, not for their professional colleagues, as I have mentioned above. Cheyne's switch from technical mode to popularizing one epitomized the difference. While he was active as one of the most aggressive iatro-mathematicians, he wrote in such an abstruse manner that even Martin Lister (1638?-1712), Fellow of Royal Society, could not understand Cheyne's tract on fever.[14] In contrast, his later works for lay general readers like The English Malady

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13. The somatic nature of the eighteenth-century mental disorders is aptly discussed in Roy Porter, 'Divided Selves and Psychiatric Medicine,' Cycnos, 1990, 6: 95-106; idem, 'Barely Touching: a Social Perspective on Mind and Body,' in The Languages of Psyche, ed. by Rousseau, 45-80. The eighteenth-century ideology of the body as the principal target of discipline (in a Foucauldian way) is discussed in idem, 'Bodies of Thought: Thoughts about the Body in Eighteenth-Century England,' in Interpretation and Cultural History, eds. by Joan H. Pittock and Andrew Wear (London: MacMillan, 1992), 82-108. The social and cultural making of the nervous diseases is discussed in Porter, 'Civilization and Disease' and idem, 'Introduction' to Cheyne, The English Malady.

14. Theodore Brown, 'The Mechanical Philosophy and the "Animal Oeconomy": a Study in the Development of English Physiology in the Seventeenth and Early Eighteenth Century,' Princeton University, Ph.D., 1968, pp.253-54.

(1733), An Essay on Regimen (1740), and The Natural Method of Curing the Diseases of the Body (1742) were consulted, digested and eagerly followed by figures with apparently little scientific background, e.g. Samuel Johnson (1709-84), Samuel Richardson (1689-1761), and the Countess of Huntingdon (1707-1791).[15]

Thirdly, the works on hysteria and hypochondria during the early eighteenth century characterized the diseases socio-culturally. The authors tried to be the doctors of society as well: they located the diseases in the economic, social, political, and cultural situation of their age.

We have, therefore, a group of medical writings which served as vehicles to spread medical expertise to general readers and which related the diseases with the contemporary social situation. Just as Joseph Addison (1672-1719) wanted to bring 'philosophy out of closet, and libraries, schools, and colleges, to dwell in clubs and assemblies, at tea-tables, and in coffee-houses,' the early Georgian writers on hysteria and nervous diseases wanted to be doctors of the market place: they preached their ideas there, and situated the diseases there.[16] This is best understood as an aspect of the the English Enlightenment.

The following sections will try to examine both intellectual and extra-intellectual aspects of them. The first section will briefly discuss the new physiology and pathology of nerves and natural-philosophical background of the nervous diseases and the mind-body interaction. There

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15. See George Cheyne, The Letters of Dr. George Cheyne to the Countess of Huntingdon, ed. with intro. by Charles F. Mullett (San Marino, Calif.: Huntington Library, 1940); idem, The Letters of George Cheyne to Samuel Richardson (1733-1743), ed. by Charles F. Mullett (Columbia: University of Missouri Press, 1943). A satirical pamphlet published in 1737 depicted how Cheyne was enthusiastically followed by his patients. See The Diseases of Bath (London: J. Roberts, 1737).

16. Joseph Addison and Richard Steele, The Spectator, 5 vols., ed. by Donald F. Bond (Oxford: Clarendon Press, 1965), no.10. See Roy Porter, 'The Enlightenment in England,' in The Enlightenment in National Context, eds. by Roy Porter and Mikulás Teich (Cambridge: Cambridge U.P., 1981), 1-18, esp. 5-6.

I will continue to examine similar issues to those I have raised in the previous chapters, i.e., the medical and philosophical framework to understand mental disorders. In the second section, I will examine the physicians' attempts to 'enlighten' the general readers into believing the bodily interpretation of mental disturbances. The third section will discuss the socio-cultural issues of the nervous diseases. There I will throw some light on the complex construction of the image of hysteria and hypochondria. Some promising sites such as hysteria and sexuality, cultural history of the body during the Enlightenment, and the literary construction of nervous personality will be left unexamined.[17]

Medical and Philosophical Framework of Hysteria and Hypochondria

a) The new problem of Boerhaavian nervous fibre

As up-market books for learned readers who were increasingly getting familiar with the scientific culture of the age, many of early Georgian writings on nervous diseases contained many up-to-date medical ideas. The eighteenth-century medical world was a relatively fast-changing one, and a fashionable medical system was replaced by another in a few decades, with conterminous competitions among several schools. Battles between medical schools were going on in the books on the nervous diseases. One was that between the ancients and the moderns. Mainly owing to Willis and Sydenham, the 'moderns' proudly announced that the etiology of wandering uterus and corrupt vapours was just wrong: Blackmore (who was actually one of the 'moderns' in Swift's Battle of Books) wrote that the ancients' theories were 'mere imaginary'; Ephraim Chambers' (d.1740) Cyclopaedia said those notions were a vulgar error and

17. These new historiographical trends are nicely discussed in Porter, 'Bodies of Thought,'; G.S. Rousseau, 'Cultural History in a New Key: towards a Semeiotics of the Nerve,' in Interpretation and Cultural History, eds. by Pittock and Wear, 25-81.

'the learned all discard it.'[18] The 'moderns' fought with each other as well: Bernard Mandeville (1670?-1733) threw no less fierce invective against Willisian chemical theories than against Galenist doctrines, preferring Sydenham's and Baglivi's empirical medicine.[19]

And the new seat of the diseases, i.e., the nervous system, was at the centre of the revisions of the framework of medical theories which were then going on.[20] English physicians at that time were becoming aware of the shortcomings of the former iatro-mathematical reduction of physiology, pathology, and even life itself, to the circulation of the blood. The circulation was no longer the sole key to life and death, and the nerves were as important in those fundamental issues in medicine.[21] Accordingly, some diseases which the Pitcairnians understood in the framework of the circulation were re-interpreted with reference to nerves: Thomas Morgan (d.1743) on madness, Richard Mead's revision of his own

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18. Blackmore, A Treatise of the Spleen, p.1; Chamber's Cyclopedia, 2nd ed., 2 vols. (London: Midwinter et al., 1738), 'Hysteric Affection'; Jonathan Swift, A Tale of Tub and Other Satires, ed. with intro. by Kathleen Williams (New York: J.M. Dent and Sons Ltd., 1975), p.158. Blackmore was one of moderns in literary issues as well, and published 'An account of the present controversy concerning Homer's Iliad.' See A. Owen Aldridge, 'Ancients and Moderns in the Eighteenth Century,' in DHI.

19. Mandeville, A Treatise of the Hypochondriack and Hysterick Diseases, pp.7-19 tells the story of both the Galenist and iatrochemist failing to cure the spleen. For Mandeville's vindication of Sydenham's and Baglivi's medicine based on observation without theory, see ibid, pp.56-68 and pp.119-20.

20. See Max Neuburger, The Historical Development of Experimental Brain and Spinal Cord Physiology before Flourens, trans. and ed. by Edwin Clarke (Baltimore: The Johns Hopkins U.P., 1981), pp.17-109; Eric T. Carlson and M. Meribeth Simpson, 'Models of Nervous System in Eighteenth-Century Psychiatry,' Bull.Hist.Med., 1969, **42**: 101-15.

21. Blackmore, A Treatise on the Spleen, p.xiv; Nicholas Robinson, A Treatise of Sudden Death, 2nd ed. (London: R. Ware, 1735), p.18.

account of delirium, and Blackmore on fever were a few of the attempts to recast the pathology.[22]

Herman Boerhaave (1668-1738), the celebrated Professor at Leiden, was one of the major figures behind this renewed interest in the nerves. His influence was ubiquitous in English medical scene from around the 1720s: his textbooks, commentaries to them and notes of lectures were published and translated; both the Royal College of Physicians and the Royal Society admitted many students of Boerhaave; some eminent English doctors corresponded with him in search of diagnosis.[23] The early Georgian writings on the nervous disorders thus involved a new way to look at the nerves and nervous disorders, which is rightly called Boerhaavian.

Boerhaave's system had the double foci of fluid and solid, unlike Pitcairn's with the single focus of the former. His two major textbooks, Institutes of Medicine (1708) and Aphorisms (1709) were most clearly framed into the binary system of fluid and solid: his physiology divided the whole components of human body into solid and fluid, and his pathology

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22. Thomas Morgan, The Mechanical Practice of Physick (London: T. Woodward, 1735), pp.120 & 127; Richard Mead, The Medical Works of Richard Mead (London: C. Hitch et al., 1762), 'The Memoirs of the Life and Writings of the Author,' iv-v; Blackmore, A Treatise on the Spleen, p.xiii.

23. For Boerhaave's influence on Britain, see E. Ashworth Underwood, Boerhaave's Men: at Leyden and After (Edinburgh: Edinburgh U.P., 1977); G.A. Lindeboom ed., Boerhaave and Great Britain (Leiden: E.J. Brill, 1974). See also Lester King, The Background of Herman Boerhaave's Doctrines (Leiden: Universitaire Pers, 1965); idem, The Medical World of the Eighteenth Century (Chicago: The University of Chicago Press, 1958), pp.59-121; G.A. Lindeboom, Herman Boerhaave (London: Methuen, 1968); Andrew Cunningham, 'Medicine to Calm the Mind: Boerhaave's Medical System and Why It Was Adopted in Edinburgh,' in The Medical Enlightenment of the Eighteenth Century, eds. by Andrew Cunningham and Roger French (Cambridge: Cambridge U.P., 1990), 40-66.

consisted of the accounts of the diseases of the solid and those of the fluid.[24] And among the solids of the body, Boerhaave stated, a nervous fibre was the most fundamental element--all solids of the body were composed of nervous fibres. A nervous fibre was the ultimate physiological unit in human body, or, as L.J. Rather claimed, something comparable to a cell in the nineteenth century.[25] Hence Boerhaave's pathology of the diseases of solid was framed according to the state of fibre: they were divided into 'the distempers of the stiff and elastick fibre' and 'the distempers of a laxe and weak fibre.'[26] The nerves were thus one of the fundamental bases of Boerhaave's pathology. Note that the new basis was not the Willisian fiery and inperceptible 'corporeal soul.' Instead, it was relatively visible and tangible. Hysteria and hypochondria were thus conceptualized, visualized, and solidified through the conception of the nervous fibres.

Boerhaave's system was very welcome: Chambers' Cyclopaedia says 'the learned Boerhaave furnishes us a much more accurate and scientifical division of Diseases, into those of the solids and fluids,' and Cheyne reproduced Boerhaave's classification in his The English Malady, identifying all nervous disorders 'from yawing and stretching, up to a mortal fit apoplexy' with 'the disorders of the solids.'[27] And Cheyne adopted the almost identical phrases with those of Boerhaave, like

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24. Herman Boerhaave, Aphorisms (London: B. Couse et al., 1715); idem, Dr. Boerhaave's Academical Lectures on the Theory of Physic, 6 vols. (London: W. Innys, 1742-46).

25. L.J. Rather, 'Some Relations between Eighteenth-Century Fiber Theory and Nineteenth-Century Cell Theory,' Clio Medica, 1964, **4**: 191-202.

26. Boerhaave, Aphorisms, pp.5-8 and pp.8-9.

27. Chambers' Cyclopaedia, 'Disease'; Cheyne, The English Malady, pp.6-8 & 14-15. W. Riese wrote that Cheyne's idea about the nervous diseases was one of the forerunners of Cullen's 'neurosis.' See W. Riese, 'History and Principles of Classification of Nervous Diseases,' Bull.Hist.Med., 1945, **18**: 465-512, esp., 471-72.

'relaxation,' 'weakness,' 'elasticity' of the nervous fibres. It is thus not surprising that John Allen (1660-1741), the author of a very successful medical compendium, Synopsis Medicinae (1719), mis-cited a passage from Cheyne's The English Malady as an extract from 'Treatise de Natura Fibrae.'[28]

Under the Boerhaavian binary system, there appeared the consciousness that phenomena in the human body had dual factors of fluids and solids. Blackmore claimed that both the fluid and the solid were concerned in nervous diseases: 'the ill conformation of the solid parts, and inordinate dispositions of the juices or serum, often conspire as partial and confederate causes in the constitution of distempers.'[29] Even when the Georgian writers on nervous diseases adopted disorder in secretion as their causes, they were trying to look at the other side of the model as well, i.e., not only the secreted fluid but also the secreting solid.[30]

Moreover, the period saw a split between the fluidist's and solidist's interpretations over the nervous diseases. Francis Fuller's (1670-1706) Medicina Gymnastica made a solidist statement that physicians had been misguided by 'our too partial consideration of the body of man by attributing too little to the solids' and applied the solidist pathology to

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28. John Allen, Synopsis Medicinae, vol.1, p.144.

29. Blackmore, A Treatise on the Spleen, pp.xii-xiii. See also Robinson, A New System of the Spleen, pp.17-19. This fits well with G.S. Rousseau's characterization of this period as 'from humours to nerves.' G.S. Rousseau, 'Psychology,' in The Ferment of Knowledge, eds. by G.S. Rousseau and Roy Porter (Cambridge: Cambridge University Press, 1980), 143-210, esp. 169.

30. Blackmore, A Treatise on the Spleen, 39-40. There were, however, still some fluidist doctors. Richard Manningham, a graduate of Cambridge, F.R.S. and F.R.C.P., still embraced Bellini's model of fever and blood circulation to explain the diseases. See Richard Manningham, The Symptoms, Nature, Causes and Cure of the Febricula, or Little Fever: Commonly Called the Nervous or Hysteric Fever; the Fever on the Spirits; Vapours, Hypo, a Spleen (London: T. Osborne, 1746), p.47.

hypochondria: 'Whenever there is a depression of the mind, ... there is reason to suspect the solids, that is the nerves, are more in fault than we think for.' On the contrary, Richard Browne, an apothecary in Oakham, gave priority to fluids: 'I only suppose at the same time that [relaxation of solids] to be a consequence of a prior disorder in the spirits.'[31] Disagreement between the solidists and the fluidists extended over the question whether hysteria and hypochondria were the same diseases or not: Charles Perry (1698-1780) and Robert James (1703-76) claimed that the two diseases must be distinguished from each other, as hypochondria is the disease of the blood or fluid, and hysteria is the disease of the solid nerve.[32] The pathology of hysteria and hypochondria in early eighteenth-century England was not monolithic.[33]

b) hysteric and hypochondriac mind

By the time when hysteria and hypochondria became a very fashionable medical topic, the Pitcairnian research programme had had its day. The strict elimination of the soul/mind from the scope of medicine had gone with its rigorous mathematical methodology. From around the

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31. Fuller, Medicina Gymnastica, i-ii and p.128; Browne, Medicina Musica, p.72.

32. Perry, A Treatise of Diseases in General, vol.1, pp.161-6 'Of Hypochondriac Diseases' and vol.2, pp.49-69, explicitly distinguished them, for, he claimed, hysteria is 'purely nervous' and hypochondria is 'purely sanguineous.' (ibid., vol.2, p.68) Robert James, citing Hoffmann, suggested that 'there certainly is a much wider difference' between these two diseases than 'the generality of moderns' claimed. Robert James, A Medicinal Dictionary (London: T. Osborne, 1743-45), 'Hypochondria, Morbus' and 'Hysterica.' See also Richard Brookes, The General Practice of Physic, 2 vols. (London: J. Newbery, 1751), vol.2, p.440.

33. Henry Fielding wrote in Amelia that 'our physicians have not agreed upon its name. Some call it the fever on the spirits, some a nervous fever, some the vapours and some the hysterics.' Quoted in Doughty, 'The English Malady of the Eighteenth Century.'

1720s, English medical scene witnessed a revival of psychic and mental issues.

The revival of psyche was the most evident in some doctors' 'animistic' claim that the soul controls life itself--the diametrically opposite position to Descartes, Pitcairn and Boerhaave.[34] Bryan Robinson (1680-1754) wrote that 'the soul has a very great power over the heart,' observing the instance of a dying man recovering the motion of the heart by the excitement of the mind.[35] Cheyne favourably cited the passage in his English Malady, and himself gave further support to the idea by adding his own observation of the case of one Colonel Townshend, who 'could die or expire when he pleased, and yet by an effort, or some how, he could come to life again.'[36] Impressed by William Porterfield's treatise on the motion of the eyes, Richard Mead apostatized to a determined animist in the 1730s and wrote about the soul controlling bodily processes and getting rid of harmful substances from the body.[37] Although it is rather misleading to paint all of them mentioned above as determined animists who turned the Cartesian mechanical foundation upside-down, it seems certain that the early Georgian writers were no longer determined to do medicine without

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34. Stahl's so-called animism was one of the very few things that Boerhaave threw bitter criticism against. See Herman Boerhaave, Institutions in Physick, trans. by Joseph Browne (London: Jonah Browne, 1714), xiii-xiv.

35. Bryan Robinson, A Treatise of the Animal Oeconomy, 2nd ed. (Dublin: S. Powell, 1734), pp.179-80.

36. Cheyne, The English Malady, pp.69 and 308.

37. Mead, The Medical Works of Richard Mead, pp.314-15. For Porterfield's challenge to the mechanical medicine, see John P. Wright, 'Metaphysics and Physiology: Mind, Body, and the Animal Economy in Eighteenth-Century Scotland,' in Studies in the Philosophy of the Scottish Enlightenment, ed. by M.A. Stewart (Oxford: Clarendon Press, 1990), 251-301, esp. 264-76.

the soul and were ready to look at the issues related with the soul/mind.[38]

Accordingly, the early Georgian writers characterized hysteria and hypochondria with liberal use of language related to the mind and its higher faculties. Following Sydenham, Chambers' Cyclopaedia wrote that when the disease gets serious, 'the patient is more affected in mind than in body'; Nicholas Robinson (1697-1775) wrote that spleen or vapours 'appeare more immediately to affect the mind, and disconcert the powers of the intellectual faculties'; Cheyne claimed that serious spleen and vapours is attended with 'a deep and fixed melancholy, wandering and delusory images on the brain, and instability and unsettledness in all the intellectual operations.'[39]

Indeed, the mental faculties that were considered to be damaged were something higher than sense and motion, in which the iatro-mathematicians' madness consisted. Blackmore wrote that illusory disorders like 'vertigo, a ringing noise in the ears, sad and monstrous dreams, nightmares' were not the genuine mental symptoms of the spleen but 'corporeal, and respect the organical parts of the human animal.' When the disease reaches at a more severe stage, 'there are many besides that affect the mind, and disturb the superior commanding powers.'[40] The disorders in the higher intellectual faculties were thus reintroduced as the hallmark of the 'mental' diseases.

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38. Here I do not entirely agree with Wright's claim that Porterfield and Cheyne 'believed that the Townshend case provided a kind of crucial experiment which challenged the claim of Boerhaave and his followers that the mind cannot affect the vital and natural motions of the body.' (Wright, 'Metaphysics and Physiology,' 271.) This was certainly the case with Porterfield, but not with Cheyne. Cheyne just gave the narrative and left its explanation to readers, which Porterfield recast into the crucial experiments against Cartesian scheme. To paint Cheyne as a determined animist does not seem appropriate.

39. Chambers' Cyclopaedia, 'Hypochondriac Affection'; Robinson, A New System of the Spleen, p.228; Cheyne, The English Malady, p.199.

40. Blackmore, A Treatise of the Spleen, p.24.

The restoration of the mind into medicine was exemplified also in the cure of hysteria and hypochondria. Richard Browne's Medicina Musica makes a sharp contrast with Mead's purely bodily account of the curative effect of music on delirium. For Mead, the reason why music cured the delirium caused by the bite of a tarantula was that the tremors of the nerves caused by the undulating sound-wave broke down unnatural coagulation in the blood, and that the joy of listening to the music prompted 'more frequent and stronger pulse.'[41] For Browne, this exclusively bodily interrpretation was not entirely the case. Cure was achieved by the effect of music on the depressed mind per se:

> In nervous disorders, such as the hypochondriack, hysterick, and melancholick afections, singing will be much conductive to the cure: for as in these diseases the mind is fill'd with gloomy dejecting ideas, and the body labours under a deficiency of spirits, and as by singing we may possibly strike the ear to pleasingly as to affect the mind, as divert our anxious thoughts, by the succession of the brisk and lively ideas of the tune; we may certainly by this means chear and elevate the soul, and by sympathy invigorate the motion of the spirits.[42]

Music could divert sad ideas, invite cheerful ones, and cure the spleen: Mead would have tried hard to underpin the process with exclusively somatic mechanism. On the other hand, Browne was hardly a proponent of exclusively 'psychological' therapy of mental diseases. His another statement on the curative effect of singing was no less somatic than Mead's: 'I have suppos'd that singing, etc. contribute to the cure, only as

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41. Richard Mead, The Mechanical Account of the Poisons (London: R. Smith, 1702), p.72.

42. Browne, Medicina Musica, pp.28-9.

they help to invigorate the [animal] spirits.'[43] This shows that the strict dichotomy between the mechanical-somatic psychiatry and psychic-psychological one did not exist in the period. Although there had been the rigorous 'somatic' school of the iatro-mathematicians, yet not following the school did not necessarily mean that one had to be a determined supporter of psychological medicine.

c) Intellectual and/or emotional mental diseases.

Hysteria and hypochondria thus involved certain damage on the 'mind' of the sufferers. What kind of damage was it then? How did the physicians understand the mental aspects of the diseases, especially when they already had the more established mental diseases, i.e. mania and melancholia?

Depending partly on the traditional link between hypochondria and melancholia, the early Georgian medical writers understood the newly fashionable mental diseases as something analogous to melancholia, characterizing them by the symptom of depression.[44] Cheyne wrote to Richardson, that the 'hyp' was a distemper 'attended with lowness of spirits'; John Burton (1710-71), the reputed model of 'Dr. Slop' in Tristram Shandy, when writing about the passions of fear and sorrow, referred only to 'hypochondriac and hysteric affections' as if they were the best examples of fear and sorrow.[45] Splenetic valetudinarianism was interpreted as melancholic fanciful despair on one's health or on the hope of recovery:

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43. Browne, Medicina Musica, p.1.

44. As for eighteenth-century example of 'hypochondriac melancholy,' see Herman Boerhaave, Aphorisms, p.294. Boerhaave wrote that when melancholy fluids 'gradually stop, be accumulated and stagnate in the hypochondriac vessels, then [the disease] is called an hypochondriac disease, or in usual terms in England, the spleen.'

45. Cheyne, The Letters to Samuel Richardson, p.59, and John Burton, A Treatise on the Non-naturals (York: A. Staples, 1738), pp.338-39.

Sydenham observed that 'it being the nature of this disease to be attended with incurable despair; so that they cannot bear with patience to be told that there is hopes of their recovery.'[46] With the pivot of sadness and despair, the link between the spleen and melancholia was reinforced in the early eighteenth century.

Many indeed went further to claim that there was little difference between the two pairs of hysteria/hypochondria and mania/melancholia, and hysteria and hypochondria were understood as milder analogues of mania and melancholia.[47] Blackmore, for example, wrote:

> The limits and partitions that bound and discriminate the highest hypochondriac and hysterick disorders, and melancholy, lunacy, and phrenzy, are so nice, that it is not easy to distinguish them, and set the boundaries where one ends, and other begins.[48]

On the other hand, they did not think mania-melancholia and hysteria-hypochondria were identical. As for the former, the early Georgian writers largely adopted the Cartesian model of madness as a production of false ideas in the mind: Blackmore wrote that melancholy is 'accompanied with great disturbance of the imagination and fancy, and continued and uninterrupted flux or train of thoughts fixed upon on sad object'; Robinson modelled mania exactly after Pitcairnian manner as an epistemological disorder accompanied with incoherent motion caused by

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46. Quoted in Hunter and Macalpine, Three Hundred Years, p.222. See also Robinson, A New System of the Spleen, p.213.

47. See Max Byrd, Visits to Bedlam: Madness and Literature in the Eighteenth Century (Columbia: University of South Carolina Press, 1974), pp.116-22.

48. Blackmore, A Treatise on the Spleen, pp.163-4. See also Robinson, A New System of the Spleen, pp.199, 228 and 230. Cheyne seems to have been of a different opinion. He made more strong distinction between hypochondria and hysteria and lunacy. Unfortunately, he did not spell out the differences. See Cheyne, The English Malady, pp.254-55.

violent shock on the seat of the soul, writing that it takes place when 'the impulses [via nervous fibres] are strongly struck on the seat of the common sense, and the rational soul [is] divested of all its noble and distinguishing endowments.'[49] The early Georgian picture of mania and melancholia remained very much the same as the Cartesian and the iatro-mathematical ones. It consisted in a shock on the seat of sensation, false ideas, and disordered motions. It was framed around man's ability to perceive the external world and to act accordingly.

Hysteria and hypochondria did not consist in delusion, however. The diseases were more conceived as the inconstancy of the mood, rather than stark illusion. Probably following Sydenham, who observed that hysteric patients 'are only settled in inconstancy,' Blackmore wrote that the major mental affections of the diseases were found in 'unsteady and changeable judgment, purpose, diversity and inconstancy in their temper and passion,' and 'fluctuation of judgment, and swift turns in forming and reversing of opinions and resolutions, inconstancy, timidity, absence of mind, want of self-determining power, inattention, incogitancy, diffidence, suspicion, and an aptness to take well-meant things amiss.'[50] Robinson gave a more detailed description:

> And they are thus wavering and unsteady in their judgment, neither do they observe a rectitude in any one action of life: now they love a person to excess, presently after they hate him in the other extreme; anon they resolve to do such an action, a moment after they alter their purpose, and take directly contrary measures; so that thro' the whole scene of their lives, you shall always observe them constant to nothing but inconstancy; always wavering, unsteady, and fearful of doing wrong, in the most trifling concerns

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49. Blackmore, A Treatise of the Spleen, p.156; Robinson, A New System of the Spleen, pp.241 & 291-92.

50. Blackmore, A Treatise of the Spleen, pp.26 & 107.

of life: yet in all other respects, as ingenious, well-disposed people, as you would desire to converse them.[51]

The hysterics and hypochondriacs represented here do not lose touch with the external world: they neither see pink elephants, nor mistake themselves for a glass pitcher. They just did not act in an ordinary, predicable and expected way. And there was little effort to adjust the epistemological disorder of madness and the unpredictable mood of hysteria and hypochondria.[52] The discrepancy was largely left open.

Thus we have the confusing and apparently confused picture of hysteria and hypochondria. They were said to be almost indistinguishable from mania and melancholia. On the other hand, the described symptoms of the two pairs of mental diseases were significantly different. How should we read this extremely amorphous construction of the mind affected by hysteria and hypochondria? Part of the answer lies in the contemporary understading of the diseases. The complexity of the symptoms was a built-in part of the eighteenth-century understanding of hysteria and hypochondria, for, again following Sydenham, they were frequently referred to as 'proteus,' a disease that imitates a lot of other diseases.[53] Given that protean nature of hysteria, there is no wonder that it was accompanied by the symptoms proper to mania and melancholia.

Besides, we are able to make a tentative assessment of the more fundamental way in which the early Georgian doctors understood mental diseases. As is evident from their claim that the spleen and madness were

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51. Robinson, A New System of the Spleen, p.214.

52. See, however, John Purcell, A Treatise of Vapours, or Hysteric Fits (London: Edward Place, 1707), pp.124-29.

53. See Chambers' Cyclopaedia, 'Hypochondriac affection.' As late as 1769, a summary book of medicine says that 'there are no distempers which assume such a variety of forms, as those called nervous; and there are few complaints which they do not resemble or mimick.' A Compendium of Physic, and Surgery, for the Use of Young Practitioners (London: J. Nourse, 1769), p.141.

almost indistinguishable, any rigid framework which would have distinguished emotional from intellectual disorders, disturbance of mood from epistemological failure, let alone neurosis from psychosis, was alien to them.[54] Instead of a separate framework, they had a gradual scale. Something that differentiates stark madness from the spleen existed, and this something consisted in the difference in intensity of affliction. Early eighteenth-century medicine stopped just there and did not think about going further to clarify actually where and how milder nervous diseases ended and stark madness started. The medical writers at that time did not pose themselves the problem of separating the mad from the nervous. Asking them to spell out that something is asking them a question which they did not recognize.

d) The problem of the mind-body interaction

I have concentrated on the aspect of the mental disturbances in hysteria and hypochondria. The diseases were, however, not exclusively mental. Unlike maniacs who were found as healthy as (or even healthier than) normal people in bodily terms, patients of the nervous diseases were accompanied with a host of bodily symptoms.[55] As well as the symptoms of the disorders in the mind, the patients showed such bodily symptoms as impaired digestive faculty, degeneration in the concoctive power of the ventricle, windy affluvia, paroxysms, pain, palpitation and trembling of the

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54. For a good summary of the idea on disorders on affection, see G.E. Berrios, 'The Psychopathology of Affectivity: Conceptual and Historical Aspects,' Psychological Medicine, 1985, 15: 745-58; Ernest R. Hilgard, 'The Trilogy of Mind: Cognition, Affection, and Conation,' Jour.Hist.Behav.Sci, 1980, **16**: 107-17. See also Esther Fischer-Homberger, 'Hypochondriasis of the Eighteenth Century--Neurosis of the Present Century,' Bull.Hist.Med., 1972, **46**: 391-401.

55. The idea that maniacs are healthier than ordinary people is expressed in Richard Mead, Medical Precepts and Cautions, cited in Hunter and Macalpine, Three Hundred Years, p.388; William Battie, A Treatise on Madness (London: J. Whiston et al, 1758), p.61.

heart, vertigo, giddiness, dulness, dimness of the sight, and a ringing noise in the ears.[56] Here again at work was gradation from bodily symptoms to mental ones instead of rigid dichotomy between the spleen that affected the body and the spleen that tormented the mind.

In terms of the causes, the medical writers on hysteria and hypochondria were straightforward in embracing the somato-psychic causation of the diseases. As I have already examined, they were caused by the disorder in the nervous fibres. This, however, does not mean that the mind there played only a passive role in the pathology.[57] Frequent account was made about ill and beneficial effects of the passions of the soul upon the bodily health as well as somato-psychic ones.[58] Cheyne wrote about both directions: 'The bodily machine, disordered or spoiled, will sink, debase, blunt and confound the operations of the spirit; and the spirit violently agitated, or too closely confin'd, will disturb the oeconomy of the bodily functions.'[59] Edward Strother (1675-1737) maintained that 'small-pox have been introduc'd by excessive anger'; John Armstrong (1709-1779), in his didactic medical poem, wrote that while 'the mind, with

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56. Blackmore, A Treatise of the Spleen, pp.17-26. See also James, A Medicinal Dictionary, 'Hypochondria, Morbus.'

57. C.E. McMahon, 'The Role of Imagination in the Disease Process: Pre-Cartesian History,' Psychological Medicine, 1976, **6**: 179-84. Theodore M. Brown, 'Descartes, Dualism, and Psychosomatic Medicine,' in The Anatomy of Madness: Essays in the History of Psychiatry, 3 vols., eds. by W.F. Bynum et al. (London: Tavistock, 1985-88), vol.1, 40-62; L.J. Rather, Mind and Body in Eighteenth-Century Medicine, (London: The Wellcome Historical Medical Library, 1965), p.140.

58. Psycho-somatic influence was frequently discussed in the writings on passions of the soul. See, John Burton, A Treatise on the Non-naturals, pp.334-40, 'Of Affections of the Mind,' and William Clarke, A Medical Dissertation concerning the Effects of the Passions on Human Bodies (London: W. Frederick, 1752). Clarke's work was first published in Latin at Leiden in 1727 as his dissertation done under Boerhaave.

59. George Cheyne, An Essay on Regimen, together with Five Discourses, Medical, Moral and Philosophical (London: C. Rivington, 1740), p.158.

various thought amus'd / Nor aches itself, nor give the body pain ... 'Tis painful thinking that corrodes our clay.'[60]

The scheme behind the interaction was essentially Cartesian philosophical framework, i.e., the interaction of pure matter and the soul. Hence there was no Willisian corporeal soul, nor the matter specially endowed with the power to think, which Locke suggested hypothetically to cause an avalanche of protests.[61] Nicholas Robinson took an unmistakable Cartesian position, when he wrote as follows:

> The mind can reason, act, and think without any assistance from the body; nor can we conceive how the finest fibres, the purest blood, or most exalted spirits, can ever inspire the bodies of ours with thought, reason, and reflection; they are foreign to a capacity of thinking, and as distant from reflection as the very bones that support the machine, though subtiliz'd to the highest degree of spirituality by all the process of nature.[62]

With no intermediate 'third' agent endowed with the power to think or feel, doctors made recourse to Malebranche's or Leibniz's transcendental solution: God's intervention or design. Boerhaave, the

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60. Edward Strother, An Essay on Sickness and Health (London, 1725), p.441, cited in Sena, 'The English Malady,' p.5; John Armstrong, The Art of Preserving Health: a Poem, (London: A. Millar, 1744), p.105.

61. I shall discuss in detail medical reactions to Locke's thinking matter hypothesis in the next chapter.

62. Robinson, A New System of the Spleen, p.26. See also David Bayne Kinneir, A New Essay on the Nerves, and the Doctrine of the Animal Spirits Rationally Considered (London: W. Innys et al., 1738), p.17. Richard Bentley, for example, wrote no 'species of matter, as the brain and animal spirits, hath any power of sense and perception.' See Richard Bentley, Matter and Motion Cannot Think (London: T. Parkhusrt et al., 1692), p.16. Here I don't agree with Sena's claim that the animal spirit in the eighteenth-century was 'a third substance, not quite matter and not quite immaterial.' (Sena, 'The English Malady,' p.11)

mentor of the many of the early Georgian medical writers, supported the Leibnizian version.[63] Echoing Boerhaave, Robinson wrote that 'God form'd us; and thus he has ordain'd, that material should obey the direction of immaterial, and immaterial of material beings. Thus matter moves thought, and thought matter.'[64]

It would be, however, misleading to paint Boerhaave, Robinson, and many others as preaching Leibnizian or Malebranchean model of the interaction. Boerhaave did not positively believe in the pre-established harmony. Rather, he made a reluctant choice, writing that Leibniz's solution 'leaves us equally in the dark with the other [Malebranche's occasionalism],' claiming that no model could successfully explain the interaction.[65] Of course, this does not mean that Boerhaave denied the possibility of interaction. What he actually denied was the possibility of explaining interaction:

> we cannot understand or explain the manner in which the body and mind reciprocally act upon each other from any consideration of their nature separate; we can only remark by observation their effect upon each other without explaining them.[66]

The message to medical students was clear: think mainly about the body, look at the interaction when it takes place, describe the effects of the interaction, but refrain from explaining the mystery of the interaction because it is a waste of time.

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63. Herman Boerhaave, Dr. Boerhaave's Academical Lectures, vol.1, p.69. Boerhaave's idea on the mind-body interaction is aptly discussed in John P. Wright, 'Boerhaave on Minds, Human Beings, and Mental Diseases,' Studies in Eighteenth-Century Culture, 1990, **20**: 289-302.

64. Robinson, A New System of the Spleen, p.53.

65. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.1, p.69.

66. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.1, p.66.

As I have argued in the previous chapter, Willis's and Charleton's effort to provide an alternative to Descartes's model had faded by the end of the seventeenth century. Boerhaave thus consolidated the attitude already in the air, and the attitude of the early Georgian medical writers was largely in keeping with Boerhaave's instruction. Although they made some conjectures about the mind-body medium, what they were doing was to identify where matter ends and they did not go beyond to discuss how indeed matter and mind can interact.[67] To say (as Anita Guerrini has done) that physicians at that time were trying to solve the 'Cartesian' mind-body dualism is misleading.[68] The medical problem of dualism in this period was concerned exclusively with the material side, taking the existence of the interaction for granted and putting the gap in parentheses. Once the medium is found, that is the end of the question. The difference between medical and philosophical problems is epitomized in a passage from Blackmore. Blackmore wrote that 'it is easy to conceive [my emphasis] how these depraved, active instrument of the mind, by unique and seditious connections, embroil her government and operations.'[69] The gap between the material and the immaterial, the eternal mystery for Descartes and the Cartesian philosophers, was 'easy to conceive' for Blackmore a physician.

I have looked at medical and philosophical content of the early Georgian writings on hysteria and hypochondria. Below I will turn to the interface of the intellectual and extra-intellectual issues found there.

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67. See, for instance, Robinson, A New System of the Spleen, pp.78-9; Perry, A Treatise of Diseases in General, pp.161-66.

68. Anita Guerrini, 'Isaac Newton, George Cheyne, and the Principia Medicinae,' in The Medical Revolution of the Seventeenth Century, eds. by Roger French and Andrew Wear (Cambridge: Cambridge U.P., 1989), 222-45.

69. Blackmore, A Treatise of the Spleen, p.35.

Mind, Body and the Enlightenment

a) New Ideology of the body

As I have examined, the early Georgian medical writers could not explain the interaction per se. Nevertheless, they were confident in their discovery of the 'mental' diseases of hysteria and hypochondria being caused by bodily disorder. In doing so, they were not making scientifically grounded pathological statement. Instead, they were preaching to their readers a new creed of faith that mental disorder was nothing but the product of bodily disorder.

This is most evident in Nicholas Robinson's way of vindicating bodily causations of the mental symptoms of the disease. Robinson wrote that the spleen had long been so mysterious a disease that 'some gentlemen are so ready to resolve all into whim.'[70] In his attempt to refute the view and to establish the bodily etiology of the disease, he did not base his claim on any empirical observation:

> I deny, that the thought themselves can ever start from a regular way of thinking, without inferring, at the same time, a change in the motions of the animal fibres: ... it's impossible that the mind can suffer, and the body be unaffected at the same time, & vice versa.[71]

This says that the mental disturbance in the spleen is caused bodily, just because every mental suffering must be accompanied with the corresponding change in the body. In other words, 'Every change of the

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70. Robinson, A New System of the Spleen, p.175.

71. Robinson, A New System of the Spleen, p.176.

mind ... indicates a change in the bodily organ.'[72] He was not saying that such and such part of the body was responsible for mental diseases: rather, he was saying that when there was any mental phenomena, the cause had to be looked for in the body.

The status of their discourse about the bodily basis of the mental disease can be discerned in their style of writing as well. Let us listen to Cheyne's pompous statement:

> Upon the strictest enquiry, and most anxious examination, I could never find a natural and philosophical cause for, or account of ideotism, stupidity, loss of senses, memory, or judgment, or lunacy or madness, or any of those distempers that are called cephalic or nervous, or which is attended with a deviation from what is called common sense, or just thinking, but an obstruction, extinction, relaxation, or malformation of the proper organs.[73]

The grandiose overstatement ('upon the strictest enquiry') and the sweeping generalization ('any of those distempers that are called cephalic or nervous') were the style of missionary rather than of science.

Indeed, they were engaged in a sort of militant attack against the opposing view and scornfully denied that the hypochondriac 'mental' disturbances such as whims, inconstancy, and despair were the maladies imaginaires of hard-to-please malcontents. In a satiric pamphlet, Observation on the Spleen and Vapours, a valetudinarian idle person complained of people's perception of his suffering:

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72. Robinson, A New System of the Spleen, p.178. I shall discuss the metaphysical background of the statement in the next chapter.

73. George Cheyne, The Natural Method of Curing the Diseases of the Body, and the Disorders of the Mind Depending on the Body (London: Geo. Strahan, 1742), p.78.

> I perceive, says he, you have the same notion of my distemper, that several others of your profession have had: you fancy I have got the spleen, and that all my ailments are imaginary.[74]

This was the view which early Georgian writers tried to combat, and they took almost every occasion to refute it and to preach their own. In his letter to Samuel Richardson, Cheyne scolded the novelist, who probably expressed an embarrassment against being labelled as 'hyp,' like Queen Anne (1665-1714) sacking John Radcliffe (1650-1714) diagnosing her complaint as 'vapours':

> You have quite a wrong notion about the hyp, as in truth all but sensible physicians have. We call the hyp every distemper attended with lowness of spirits, whether it be flatulence from indigestion, wind cholic, head-pains, or an relaxed state of the nerves ... so that the hyp is only a short expression for any kind of nervous disorders.[75]

Here the theory of nerves buttressed Cheyne's authoritative tone in instructing the novelist. Hence it played the role of distancing 'sensible physicians' and lay readers, as well as spreading the scientific knowledge.[76]

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74. Sir John Midriff [pseud.], Observations on the Spleen and Vapours (London: J. Roberts, 1721), p.9.

75. Cheyne, The Letters to Samuel Richardson, p.108. For Queen Anne, see Roy Porter, The Mind-Forg'd Manacles, p.57.

76. For the power relationship between medical practitioner and lay people, especially patients, see N.D. Jewson, 'Medical Knowledge and the Patronage System in Eighteenth-Century England,' Sociology, 1974, **8**: 369-85; Roy Porter, 'Laymen, Doctors and Medical Knowledge in the Eighteenth Century: the Evidence of the Gentleman's Magazine,' in Patients and Practitioners: Lay Perceptions of Medicine in Pre-Industrial Society, ed. by Roy Porter (Cambridge: Cambridge U.P., 1985), 283-314.

The mission of prevailing the true, scientific, and bodily understanding of hysteria and hypochondria continued well into the late eighteenth century. William Buchan (1729-1805) wrote in his Domestic Medicine:

> The low spirits, timorousness, melancholy, and fickleness of temper which generally attend nervous disorders, induce many people to believe that they are entirely diseases of the mind: but this change of temper is rather a consequence, than the cause of nervous diseases.[77]

This quotation from 1769 shows that the mission was not a short-term fashion limited in the earlier part of the eighteenth century. Neither did the eagerness to preach depend on the pathological details the medical writers embraced. Both solidists and fluidists believed that the disease was real. While Cheyne and others wrote that the hyp was real disease as it was located in the nerves, John Hill (1716?-1775) said it was 'a real, and a sad disease' because it had its bodily seat in the 'obstruction of the spleen, by thickened and distempered blood.'[78]

We are, therefore, not looking at such and such technical medical theory in a short term, but at the common assumption, or rather, dogma, of longue durée. At issue here was the long-term Enlightenment crusade which seems to have lasted the whole eighteenth century: the doctors then were fighting the battle against the view that said the spleen was mental,

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77. William Buchan, Domestic Medicine: or the Family Physician, (Edinburgh: Balfour et al., 1769), p.508.

78. John Hill, Hypochondriasis: a Practical Treatise on the Nature and Cure of that Disorder (London: for the Author, 1766), p.3 As for Hill, see G.S. Rousseau, 'John Hill, Universal Genius manqué: Remarks on His Life and Times, with a Checklist of His Works,' in The Renaissance Man in the Eighteenth Century, eds. by J.A. Leo Lemry and G.S. Rousseau (Los Angels: William Andrews Clark Memorial Library, 1978), 45-129.

which they find 'vulgar,' 'ignorant' and 'cruel.'[79] The learned, scientific, compassionate, progressive and bodily interpretation versus the vulgar, unscientific, mental, traditionalist and cruel view. Few things epitomized the ideal of the Enlightenment more aptly.[80]

b) Body as the key to mental phenomena

The hypochondriacs were not the only target of the Enlightenment medicalization of mental disturbances. Rather, as I have examined above, the early Georgian medical writers were trying to make a sweeping claim--all mental phenomena, diseases included, must somehow be caused by corresponding bodily changes. Accordingly, they included a lot of mental disturbances in the same category of somato-psychic diseases. Blackmore wrote that religious melancholy was a bodily disease and hence a problem of physicians rather than that of priests: the sufferers of the diseases 'must more depend upon the art of the physician, and the force of medicine than the skill and reasonings of the casuist, for their recovery.'[81]

Not only the over-religious, but also the non-religious were regarded as bodily disordered. As if echoing The Spectator which wrote that the infidels and atheists 'are made up of pride, spleen and cavil,' Cheyne thought that a disturbing freethinking libertine was actually disturbed in his body: 'he is in a bad state of health, under a dangerous bodily disease, or under a perpetual mal-regimen'; Robinson included 'religious madness'

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79. Cheyne, The English Malady, p.117, Hill, Hypochondriasis, p.3.

80. As for general characterization of the Enlightenment, see Peter Gay's still useful The Enlightenment: an Interpretation, 2 vols. (New York: Vintage, 1966-69); Roy Porter, The Enlightenment (London: MacMillan, 1990). There is a fast-growing body of literature on the Enlightenment and the body, which I have not extensively consulted. Roy Porter, 'Bodies of Thought: Thoughts about the Body in Eighteenth-Century England,' includes useful historiographical assessment of the topic.

81. Blackmore, A Treatise of the Spleen, p.160.

and 'atheistical madness' in his list of the bodily-caused mental disorder.[82]

In their sweeping reduction of religious melancholy, enthusiasm, and atheism to bodily distemper, Blackmore, Cheyne, and Robinson seem to have represented the long-term shift from the late sixteenth- and early seventeenth-century, when the physicians like Timothy Bright and André du Laurens were eager to maintain that there should be two sorts of mental disturbances, one being organic mental ailment, the other purely mental one with no organic disorder accompanying. The early Georgian medical writers no longer admitted the 'purely mental' disturbances, neither did they think any mental disturbances should be left to the hand of divines.

It is extremely difficult to specify when the shift started, but one possible sign of it was Robert Burton's and Henry More's attack on religious melancholy and enthusiasm in the mid-seventeenth century.[83] Eighteenth-century bodily interpretation of mental disturbances was partly the continuation of the tactics of Burton and More. As I have mentioned in Chapter One, they medicalized their polemic against Puritans and enthusiasts and debased their claim to holy inspiration to mad delusion. Robinson's claim that Methodists and French Prophets were mad because of their bodily disorder was just an eighteenth-century version of Burton's and More's attack against undesirable religious sects in medical or pseudo-medical format.[84]

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82. Addison and Steele, The Spectator, no.381; Cheyne, The Natural Method, p.84; Robinson, A New System of the Spleen, pp.239-40 and 246-47. The Spectator also associated over-religious persons with the spleen in no.491.

83. See, inter alia, Michael Heyd, 'The Reaction to Enthusiasm in the Seventeenth Century: towards an Integrative Approach,' Journal of Modern History, 1981, 53: 258-80.

84. Robinson, A New System of the Spleen, pp.246-47. For French Prophet, see Hillel Schwartz, Knaves, Fools, Madmen, and that Subtile Effluvium: a Study of the Opposition to the French Prophets in England,

There was, however, substantial difference between seventeenth-century invectives against the wrong religious sects and early Georgian medicalization of hysteric, hypochondriac, religious-melancholic, and free-thinking mental disturbances. In reducing the religious or anti-religious mental disturbances to bodily diseases, the early Georgian writers were not constructing a polemic against such and such disturbing religious sects. Their polemic was directed not to the sufferers of the disturbance in the mind. Rather, they were bodily sick, hence were objects of pity, compassion, and medical treatment, instead of contempt and elimination. The real enemy was those who were not medically and scientifically learned. The main impetus seems to have been the determination to instruct their readers into believing the bodily causation of the mental disturbances (which is most evident in Cheyne scolding Richardson). They were not principally fighting a battle between right and wrong religions, but that between those who were scientifically learned and Enlightened and those who were not.[85]

Another twist is that the body was not only regarded as sickening but also improving the mind. Of course, optimism about improving the mind by medical intervention to the body was not their own creation, but had already been expressed by, for example, Descartes in his Discourse on Method.[86] Their contribution was that they provided detailed self-help

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1706-1710 (Gainesville, Florida: The University Press of Florida, 1978). Roy Porter, 'The Rage of Party,' 39-41, discusses aearly eighteenth-century reactions against enthusiasm.

85. Whether or not lay people were persuaded into believing the bodily interpretation of mental disturbances is not clear. Although Lady Mary Wortley Montagu wrote to her daughter that 'madness is as much a corporal distemper as the gout or asthma,' my very limited look at relevant materials does not allow generalization. Lady Mary's remark is cited in George Rousseau, 'Science,' in The Eighteenth Century, ed. by Pat Rogers (London: Methuen, 1978), 187.

86. René Descartes, The Philosophical Writings of Descartes, 3 vols., eds. by John Cottingham et al. (Cambridge: Cambridge U.P., 1985-91), vol.1, p.143: 'For even the mind depends so much on the temperament and

manuals for bodily improvement of the mind and reached a far wider audience. What Descartes prophesied as a wild dream in the technical and philosophical text was transformed in the Enlightenment England into digestible how-to manuals.

Accordingly, it was frequently recommended to refine one's body in order to improve one's mind. Cheyne wrote:

> the perfection, and full, free and just use of the intellectual faculties, depends, in a great measure, on the soundness and health of the bodily machin, more particularly of the organs of these intellectual faculties.[87]

Cheyne almost said that if one follows proper diet, one can be a Newton. The Newton in Cheyne's books was not a divinely inspired genius of the Romantics, but a man who kept his body healthy and fit for intellectual activity: men of great intelligence 'maintained their superiority of parts, their penetration, attention, just and close thinking, by extreme temperance.'[88]

The body was supposed to develop moral virtues as well as keen intelligence. Cheyne maintained that 'calmness, serenity, chearfulness and common sense, and an esteem and love of virtue ... are the constant

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disposition of the bodily organs that if it is possible to find some means of making men in general wiser and more skilful than they have been up till now, I believe we must look for it in medicine.'

87. Cheyne, An Essay on Regimen, pp.166-67. Robinson wrote 'the bodily organs, and especially those on which [soul's] operation immediately depend, vary mightily, by which the exercise of its faculties are lessen'd or improv'd.' Robinson, A New System of Spleen, p.31.

88. Cheyne, The Natural Method, p.82. For changing images of Newton in the late eighteenth and early nineteenth century, see Richard Yeo, 'Genius, Method, and Morality: Images of Newton in Britain, 1760-1860,' Science in Context, 1988, 2: 257-86.

attendants, and only infallible symptoms of perfect bodily health.'[89] Even when Cheyne admitted that the moral and intellectual powers of the mind were mutually dependent, he thought that the one could improve the other only via body:

> The restoration [of intellectual faculties] must be brought about by the culture of the moral qualities, which perfect and develop the natural ones, and thereby purify and sublime the [bodily] vehicle, extend and form intellectual organs.[90]

Moral qualities of the mind thus enabled one to refine the body by temperance, then the refined body improves the intellect. In other words, the moral power could 'mend and improve the bodily health by temperance and abstinence, and consequently rectify and tune the organs of the intellectual faculties.'[91]

The body was therefore the vehicle of the improvement of the mind, rather than its enemy. One must refine the mind by taming the body and by making it a suitable instrument of the mind:

> Our bodies ... cannot be brought into absolute subjection and obedience; but we may readily bring them to the present docility and subjection we have of the domestic animals; by timeously bridling, trammeling and disciplining them, i.e., by feeding them coolly and sparingly, giving them due air, exercise and cleanness,

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89. Cheyne, The Natural Method, pp.84-85.

90. Cheyne, An Essay on Regimen, p.167.

91. Cheyne, An Essay on Regimen, pp.165-66. His advice to the Countess of Huntington tells the same assumption. See Cheyne, The Letters to the Countess of Huntingdon, p.10.

> and physicking them properly when they grow rampant, rebellious, or obstreperous.[92]

Neither complete denial of the flesh nor going out of one's body into pure spiritual realm was Cheyne's way to mental perfection. Instead, Cheyne adopted a more this-worldly view, and said that the proper care of the body was vital for spiritual perfection.

c) 'The Rise of Modern Paganism'?

For the early-Georgian doctors, especially for Cheyne, taking care of one's mind meant par excellence taking care of one's body, one's diet and life-style. Cheyne was preaching: keep temperance, eat and drink proper things in a proper amount, and take exercise, and you will be intellectual, virtuous and a good Christian. The bodily influence on the mind indeed overshadowed philosophical and religious mental instruction:

> Different natural complexions of the soul and intellectual faculties, and different improvements from education, philosophy, or religion, may make some small odds in the behaviour of different persons under these disorders. But this depends much upon the degrees of distemper, and the original frame and make of the body.[93]

Here underlies a potentially subversive claim that moral and religious instruction is less important than the bodily one. The former could make only 'some small odds' and what really mattered was the body. Cheyne himself admitted that his prescription was essentially secular one. Trying to persuade Richardson to follow a thin diet, he wrote:

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92. Cheyne, The Natural Method, p.87.

93. Cheyne, The English Malady, p.2.

> It is true that you are not a physician, but you are I hope a Christian. St Paul kept his body under. Our saviour bids us fast and pray and deny ourselves without exception. But for this there is no need of revelation advice. [my emphasis] If you read but what I have written in this last in the Essay on Regimen [and] in long Life and Health ... your own good sense would readily assure you.[94]

Although this tells the novelist to follow Jesus and keep temperate, the rationale of the instruction the physician gives is medical, not religious.

This, however, does not mean that Cheyne and his fellow Enlightenment physicians were infidels or supporters of the 'modern paganism.' Militant medical scientific Enlightenment did not necessarily mean militant secularism.[95] Indeed many of the medical writers I have looked at were active in buttressing Christianity.[96] Blackmore defended immortality of the soul and attacked atheists and Arians; Cheyne was very pious and found by the Countess of Huntingdon (who was a Methodist) to have 'the most refined notions of the true spiritual religion I almost ever met with.'[97] They were not a La Mettrie (1709-1751), who turned mid-

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94. From Cheyne to Richardson, Jan 10 1741-2. In The Letters ... to Samuel Richardson, p.81.

95. As for classical interpretation of the Enlightenment as 'the rise of modern paganism,' see Peter Gay, The Enlightenment. Roy Porter aptly criticized Gay's expansion of the French model to England. See Roy Porter, 'The Enlightenment in England,' 6.

96. Porter, 'The Enlightenment in England,' 6.

97. Richard Blackmore, Essays upon Several Subjects, 2 vols. (London: E. Carll et al., 1716), vol.1, pp.291-356, 'An Essay upon the Immortality of the Soul,' and vol.2, pp.1-166, 'An Essay upon Atheism'; Cheyne, The Letters ... to the Countess of Huntingdon, viii. G.S. Rousseau suspects that Cheyne belonged a mystical religious sect in G.S. Rousseau, 'Mysticism and Millenarianism: "Immortal Dr. Cheyne,"' in Millenarianism and Messianism in English Literature and Thought 1650-1800, ed. by R.H. Popkin (Leiden: E.J. Brill, 1988), 81-126.

century medical theory into the most formidable weapon against the established Christian metaphysics of immaterial and immortal soul, nor a Helvétius (1715-1771), who wrote that Christianity did only harm to the education of the human mind.[98]

Neither did the contemporary religious profession find the physicians' bodily explanation as a threat to religion. One can indeed detect a clergyman's readiness to accept the medical view of hypochondriac low-spiritedness and religious melancholy. As early as 1692, John Moore (1646-1714), chaplain to William and Mary, delivered a sermon Of Religious Melancholy, in which he stated that the so-called religious melancholy was 'distempers of the body, rather than faults of the mind.'[99]

As the century went on, a more explicit debt to medical literature came to be expressed. In his pamphlet published in 1750, Lewis Southcomb, the rector of Roseash, Devon, described the emotional disorder of religious depression in a more medicalized language. Unlike some sixteenth- and seventeenth-century writers on the 'physick of the soul,' Southcomb did not make a watertight distinction between the sickness of the mind and bodily diseases. Although he still admitted that there are two sorts of depression, 'a wounded conscience convicted by a sense of sin' and 'a wounded spirit proceeding from a disordered body,' he

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98. La Mettrie's materialism has been nicely discussed in Aram Vartanian, La Mettrie's "L'Homme machine" (Princeton: Princeton U.P., 1960); idem, Diderot and Descartes: a Study of Scientific Naturalism in the Enlightenment (Princeton: Princeton U.P., 1953). An attempt to contextualize La Mettrie in the Enlightenment has been made in Kathleen Wellman, 'Medicine as a Key to Defining Enlightenment Issues: the Case of Julien Offray de La Mettrie,' Studies in Eighteenth-Century Culture, 1987, 17: 75-89. For Helvétius, see Encyclopedia of Philosophy, 'Helvétius' by Aram Vartanian; Claude A. Helvétius, De l'ésprit or Essays on the Mind (1810: New York: Burt Franklin, 1970).

99. Cited in Hunter and Macalpine, Three Hundred Years, pp.252-253.

bowed to Cheyne's authority and welcomed medical knowledge.[100] Citing Cheyne, he adopted medical discourse to admit that it was so difficult to recognize the diseases that both clergymen and laymen had been deceived into believing that the complaints were mere fancy and whims.[101] To avoid this mistake, the religious profession should work with the medical one:

> If the case be such as appertains truly to Conscience, then divines are the best judges, and we ought to be directed by them. But if the case be such as appertains not at all to casuistical divinity, or if there be a mixture partly appertaining to conscience, and partly to distemper, there will be but little satisfaction given by the divine, without the help of the physicians.[102]

Later in the century, a dissenting minister Benjamin Fawcett (1715-1780) published Observations on the Nature, Causes and Cure of Melancholy (1780), to express his hope for medical help to treat religious melancholy:

> I am the more desirous to avail myself of the judgment of the best writers in medicine, because it is very difficult to convince persons afflicted with melancholy, that their distemper arises from the body, and is from thence communicated to the mind; and because the

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100. Lewis Southcomb, Peace of Mind and Health of Body United (London: M.Cooper, 1750). He was admitted to The Queens' College, Cambridge, in 1701. British Library catalogue attributes seven publications to him, some of which seem to have been written by his father of the same name.

101. Southcomb, Peace of Mind, p.15.

102. Southcomb, Peace of Mind, p.26.

> friends of such are so prone to mistake the case, ... to pronounce it nothing but the effect of imagination or vapours;[103]

No antagonism is found here between the medical, scientific, and bodily world view and the religious one, and the split was rather assumed between those medically learned (clergymen included) and those not. Peter Gay's Enlightenment militant secular paganism did not take place in the bodily interpretation of the mental and often religious disturbances in early Georgian England. Although the English physicians claimed that the mental and religious disturbances were actually bodily disorders and hence belonged to physician's domain, they did not open fire at religion and the religious profession. The religious profession, too, seem to have been friendly to the medicalization of mental disturbance, believing in the expertise of the Enlightened medical profession.

I have examined how the early eighteenth-century medical construction of the hysteric and hypochondriac mind and the body can be contextualized into the English Enlightenment. The medical discourse on the diseases involved another construction--the society which engendered the nervous diseases, which I will discuss in the next section.

Hysteric/Hypochondriac Man and Society

a) Environment and the human mind

Hysteria and hypochondria were almost unanimously understood as the disease local to England. Replacing Gideon Harvey's (1640-1700) consumption as seventeenth-century morbus anglicus, the English, foreigners, lay travellers and medical professors identified hysteria and hypochondria as an English malady. The discourse about the rationale of

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103. Benjamin Fawcett, Observations on the Nature, Causes and Cure of Melancholy: Especially of That Which is Commonly Called Religious Melancholy (Shrewsbury: J. Eddows, 1780), p.3.

locating the diseases in England was based on the natural and social environmental argument, another feature commonly attributed to the Enlightenment.[104]

The major proponent of the natural and social environmental characterization of the English Malady was Cheyne, whose socio-cultural account of the English malady has been perceptively discussed by Roy Porter. Besides being the disease caused by natural factors like moist air and variable weather, Cheyne's English malady was a mental disease of the Enlightened civilization--a high, rich, urbane, and sedentary life, with abundance of exotic food, evening entertainment, and all sorts of unhealthy luxuries brought about by the flourishing economy.[105] On the contrary, those who lived a primitive life were not susceptible to the diseases. Flattering the sick novelist, Cheyne wrote to Richardson that 'all below farmers have few or no natural distempers' and 'outlive three or four landlords at an average.'[106] Unlike robust farmers, the modish, polite and intelligent must suffer from nervous complaints, because:

> those whose eminence and dignity consists in their head, faculties, and spiritual nature ... or, in one word, ... those who govern ... have more delicate and elastic organs of thinking and sensibility, ... they

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104. For the medical construction of environment in late Enlightenment, see L.J. Jordanova, 'Earth Science and Environmental Medicine: the Synthesis of the Late Enlightenment,' In Images of the Earth: Essays in the History of the Environmental Sciences, eds. by L.J. Jordanova and Roy Porter (Chalfont St Giles: BSHS, 1979), 119-46. Philosophes' consideration of the influence of environmental factors on civilization is discussed in Clarence J. Glacken, Traces on the Rhodian Shore (Berkeley: University of California Press, 1967), pp.551-622. See 'Environment and Culture' in DHI by the same author.

105. Roy Porter, 'Introduction' to George Cheyne, The English Malady, xxvi-xxxii.

106. Cheyne, The Letters to Samuel Richardson, p.76.

> are like fine lancets or razors, that coarse usage will soon ruffle and spoil.[107]

The human mind is, therefore, malleable through environmental influence. Manual labour produced a dumb mind, those fit for intellectual labour were endowed with finer instrument, but urban luxurious living spoils the fine instruments for thinking and engenders nervous disturbances.

Cheyne was not the only figure to bring natural and social environmental issues into the discussion of the human mind, its dispositions and diseases. Blackmore was another to provide a substantial account of the problem, to give almost unbridled praise for England (unlike Cheyne's rather mixed feeling). His syllogism to prove the superiority of the English mind ran as follows. As the cause of the spleen is 'the animal spirits, stimulated, enlivened, and refin'd ... to a greater degree than they are in others,' it follows that 'those who are endow'd with a moderate portion of the spleen in their complexion, are persons of superior sense, and extraordinary vivacity of imagination.' The spleen is, by the way, 'a quality almost peculiar to this nation.' Ergo, England is the land blessed with a lot of geniuses like Milton, Locke, Newton, Wren, etc., and Britons are more original than, say, the French, the Spanish, the Italian.[108]

Blackmore underpinned his argument in his relatively little known work, The Nature of Man, a Poem (1711). There, he stated that the aim of the book was to show:

> how far the disparity of the intellectual faculties dispositions and passions of men is owing to the different situation of their native countries in respect of the sun; and to shew what advantage those

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107. Cheyne, The Natural Method, pp.82-3.

108. Blackmore, A Treatise of the Spleen, pp.258-61; idem, The Nature of Man, a Poem (London: Sam Backley, 1711), p.18.

receive, who are born in a mild air and temperate climate; and what disadvantages, in respect of understanding, and moral improvements, those nations lye under, who suffer the extream either of cold or heat.[109]

According to this scheme which sounds similar to that of Montesquieu's Spirit of the Laws, Blackmore mapped different types of climate and corresponding mental dispositions.[110] Where people are exposed to too strong sunbeams and extreme heat, 'their spirits suffer by too hot a ray / and their dry brain grows dark with too much day.' Accordingly, the residents in hot countries such as the Congo, Aethiopia, and Atlas had 'a disposition so unapt for thought' and 'various passions of destructive kind.'[111] On the other hand, in the areas such as Iceland, Greenland, and Muscovia, because of excessive coldness and poor diet, the people's blood is 'unsprightly, coarse, and unfermented': hence their spirits are thick, lazy and sluggish and their mind tends to stupidity, and they fit only for manual labour: 'the hard natives of the frozen soil / robust of sinew, and prepar'd for toil, patient of sweat can unexhausted bear / the soldier's buckler, or the huntsman's spear.'[112] Neither the hot nor the cold areas were beneficial for civilized human intellectual activities: they were lands of robust vengeful fighters and dumb manual workers, the direct opposite to the polite, civilized, urbane creatures, who were product of mild climate. In contrast with the two zones of extreme climates, 'the middle realms, that stretch between the Northern Circles and the tropic

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109. Blackmore, The Nature of Man, ii.

110. Montesquieu, The Spirit of the Laws, trans. and ed. by Anne M. Cohler (Cambridge: Cambridge U.P., 1989), esp. pp.231-45.

111. Blackmore, The Nature of Man, pp.4-7. The mental diseases typical to the people in hot countries was stark madness, which Blackmore stressed is quite different from the English spleen, the secret of English genius. See also Blackmore, A Treatise of the Spleen, p.258.

112. Blackmore, The Nature of Man, pp.10-13.

line' were 'a kinder seat to human nature.' Because of the mild climate there, the secretion of the animal spirits from the blood was done in an ideal manner, and the spirits were 'Apt to perform the mind's supreme command.'[113]

After setting up the middle realms (especially Western Europe) as the most beneficial site to the human mind, Blackmore started to differentiate several countries therein. Here the measure of discrimination was socio-political. Blackmore noticed that a beneficial political system was necessary for a desirable flourishing of culture. Britain was, he wrote, blessed with the right government, laws, and religion: 'I prefer the moderate monarchy of Great Britain established and regulated by laws, and all other constitutions fram'd and erected to that excellent model, to any species of government whatsoever.'[114] Italy and France, despite all its cultural refinement, lacked proper religion and government. The people there were under a wrong papist religion and tyrannical government: 'Let Italy with Wit and Art refin'd / invent religions to enslave the mind; / Let the polite and well-bred slaves of France / Fine manners teach, and know to dress and dance.'[115] For Blackmore, whose attachment to the causes of the Glorious Revolution was remarkable, writing about the bodily and mental constitution of English people was the occasion to sing the praise of status quo of post-Revolution, Protestant, prosperous, free from tyranny, well- but moderately- governed England, which is both blessed with a host of geniuses and haunted with the spleen.[116] Echoing Blackmore's view, Voltaire (1694-1778) wrote after

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113. Blackmore, The Nature of Man, pp.15-17.

114. Blackmore, The Nature of Man, iii.

115. Blackmore, The Nature of Man, p.69. Besides papists and atheists, he was against tolerating Arians. See Blackmore, Modern Arians Unmask'd (London: John Clark, 1721).

116. His attachment to the Glorious Revolution is evident, for example, in his 'Essay upon the Origin of Civil Power,' (Blackmore, Essays upon Several Subjects, vol.1, 423-48) where he followed Locke to deny Robert

his visit to England in 1726: 'La philosophie, la liberté, et le climat, conduisent à la misanthropie.'[117] The human mind and its diseases were thus entrenched into natural, social, cultural economical, and political environment.

b) Sociology of the English malady

The image constructed around hysteria and hypochondria I have examined above seems to have encouraged narcissism of the polite, flourishing, well-governed, liberal--in a word, Enlightened--English society.[118] Although the physicians in Georgian England actually found that the lower sort of people (such as those who were admitted to the public hospitals) suffered from nervous disorders, the image attached to the diseases was almost exclusively élitist.[119] No wonder, therefore, some were eager to wear the diseases as a badge of distinction and others were busy dismissing the fashion. Boswell (1740-1795) adopted 'hypochondriasis' as his literary persona, notwithstanding Dr Johnson warned him not to believe Cheyne's 'foolish notion that melancholy is a proof of acuteness' and Jeremy Collier (1650-1726) observed that "Tis commonly said the spleen is a wise disease, which I believe makes some

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Filmer's patriarchal origin of civil power.

117. Quoted in Doughty, 'The English Malady of the Eighteenth Century,' 257.

118. See Roy Porter, 'Civilization and Disease,' 175. As for broader issues related with the cultural history of the nerves, see G.S. Rousseau, 'Cultural History in a New Key.'

119. See, for example, John Andree, Cases of Epilepsy, Hysteric Fits, and St. Vitus' Dance, with the Process of Cure (London: W. Meadows & J. Clarke, 1746). The construction of the hysteria of poor working class women in the slightly later period is nicely discussed in Guenter B. Risse, 'Hysteria at the Edinburgh Infirmary: the Construction and Treatment of a Disease, 1770-1800,' Med.Hist., 1988, 32: 1-22.

fond of catching it.'[120] Warning against the 'modish affectation of vapours, hippo, and spleen,' an anonymous author of an anti-spleen pamphlet lamented over a valetudinarian girl:

> How cheerful, how gay, and entertaining, was the charming Leonora, before her late indisposition, and the laziness indulged, threw her into vapours and spleen, which she thought so fashionable, and added so many new charms to her beauty, that she indulged the indolent foible, till she is become a burthen to herself, and the jest of all about her.[121]

The nervous diseases at that time were a social compound with cultural and social values attached to them.

Klaus Doerner identified the values with bourgeois ones, writing that the English spleen was 'not only integrated into but almost identified with the bourgeoisie.'[122] This link of bourgeoisie and the nervous diseases is, however, not entirely convincing. As Porter has suggested, the spleen were connected with the affluent life style of the patients rather than with the way the riches were gained. Cheyne included only one 'merchant' in his published eighteen cases of nervous patients.[123] In the satire titled Observations on the Spleen and Vapours, the patients were from the wealthy leisured class rather than Weberian hard-working

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120. See Roy Porter, '"The Hunger of Imagination": Approaching Samuel Johnson's Melancholy' in The Anatomy of Madness, eds. by W.F. Bynum et al., vol.1., 63-88. Collier's passage is quoted in Doughty, 'The English Malady of the Eighteenth Century,' 260.

121. A Treatise of the Dismal Effects of Low-Spiritedness, (London: W.Owen, [1750]), p.9 and p.22. The fashion of wearing nervous disease to assert class distinction is discussed in Rousseau, 'Cultural History in a New Key,' esp. pp.41-52.

122. Klaus Doerner, Madmen and the Bourgeoisie, (Oxford: Basil Blackwell, 1981), p.31.

123. Porter, 'Rage of Party'; Cheyne, The English Malady, p.279.

capitalists: one valetudinarian hypochondriac 'had a sufficient patrimony' and 'he gave himself up to idleness.' And when the patients came from bourgeois household, they were not the breadwinners themselves but their wives. The most typical hyp wife was that whose hopes for 'a diamond ring, a new white damask gown and petticoat, a large silver cup, a gold watch, a set of new china, half a dozen new-fashioned spoons, a silver tea-pot' etc. had evaporated.[124]

This hints that what was really at issue was high-consuming life style. So, if the hysteric and hypochondriac affections were 'bourgeois' diseases at all, they were more related with newly arrived consumer society than with the mode of production.[125] Cheyne's French cuisine and urban night life and Midriff's gold watch and new china were all luxuries which became widely available during the period, both in London and in the provinces.[126] Embarrassed with the riches, the high-consuming affluent class was driven into the nervous diseases.

Moreover, working, the other side of economic activity, was curative rather than productive of the diseases.[127] John Armstrong (1709-1779), a physician-literatus, advised the reader not to 'court the luxury of tender thought' to avoid falling splenetic low-spiritedness, and wrote:

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124. Sir John Midriff, Observations on the Spleen and Vapours, pp.4-9.

125. For eighteenth-century consumer society, see N. McKendrick, et al., The Birth of a Consumer Society: the Commercialization of Eighteenth-Century England (London: Hutchinson, 1982); Roy Porter, English Society in the Eighteenth Century (Harmondsworth: Penguin, 1982), pp.201-68.

126. Porter, English Society in the Eighteenth Century, pp.232-68; Peter Borsay, 'The English Urban Renaissance: the Development of Provincial Urban Culture,' Social History, 1977, 5: 581-603.

127. Benjamin Fawcett expressed a Weberian protestant capitalist prescription for the spleen. Citing his mentor Andrew Baxter, Fawcett wrote: 'Waste not one quarter of an hour in unprofitable musings. Be sure to keep yourself constantly employed, as far as your strength will bear, in the diligent labours of a lawful calling.' Fawcett, Observations on the Nature ... of Melancholy, p.17. See Max Weber, The Protestant Ethic and the Spirit of Capitalism (London: George Allen & Unwin, 1930).

Go, soft enthusiast, quit the Cypress groves,
Nor to the virulent's lonely moanings tune
Your sad complaint. Go, seek the cheerful haunts
Of men, and mingle with the bustling crowd;
Lay scheme for wealth, or power, or fame, the wish
Of nobler minds, and push them might and day
Or join the caravan in quest of scenes
Or, more advent'rous, rush into the field
Where war grows hot; and raging thro' the sky,
The lofty trumpet swell the maddening soul.[128]

This says that solitary and meditative life would feed splenetic affections and active and social life would cure them. Here is a clear echo of the Classical debates of vita contemplativa and vita activa, and Addison and Steele's contrast between old meditative University scholars and new active philosophers of market place. Robert James's Medicinal Dictionary said 'those ... are subject to this [hypochondriac] disease, who lead a sedentary life, and indulge themselves too much in study, continual meditations and lucubrations.'[129] The Spectator advertised that 'an infallible cure for hypochondriac melancholy' was the journal itself, which was the symbol of urban, sociable, cheerful, politely active and sophisticated life style.[130] John Hill advised the hypochondriac sufferers to 'invite himself abroad and

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128. Armstrong, The Art of Preserving Health, p.112.

129. James, The Medicinal Dictionary, 'Hypochondriasis, Morbus.' See, however, Rousseau, 'Cultural History in a New Key,' 49-50, in which Rousseau has found 'do nothing' was prescribed for the disease.

130. The Spectator, no.547. The article says that nos. 173, 184, 191, 203, 209, 221, 233, 235, 245, 247, and 251 of the journal will cure the spleen. The content of some of the articles advertised as cure seems to support the active and cheerful life as cure: 'who labours long, may be allowed to sleep' (no.184), the excitement of lottery (no.192), sensual pleasure (no.203) and the 'elegant entertainments .. in our theatres' (no.235).

let his friends invite him by every innocent inducement.'[131] An active and social life was a cure to the diseases of a retreated inactive life.

We have, therefore, two seemingly contradictory topoi of the nervous diseases. On the one hand, physicians talked about the luxurious, high-consuming and fashionable life engendering the diseases. On the other hand, retreated meditative life was strongly associated with the same diseases. One said that the patients had to avoid the over-indulgence in urban life style, the other maintained that the patients had to go out of a retreated inactive life. Just as the rural and urbane culture in early eighteenth century did not make a sharp contrast, the early Georgian medical writers on the nervous diseases were not polarized into aggressive country lovers and yuppish town lovers.[132] Cheyne epitomized this absence of polarity of the country and the town, as Porter has shrewdly pointed out.[133] His keen perception of the urban vices did not made him believe that out-and-out country and retreated life is the panacea of the diseases of civilization. Instead, he prescribed going to Bath, the most fashionable provincial commercialized resort town of the age, which his rich clients preferred to the primitive, pure, and pensive life in the Lake District: indeed, a contemporary satire said that posh, pleasure-hungry ladies often feigned hysteric fits because they wanted to go to Bath.[134] The early Georgian writers on the nervous diseases of urbane, sophisticated and luxurious life style did not prescribe shunning the corrupted city and retirement to innocent purity. The Romantic rebellion to the bourgeois urban values was still to come.

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131. John Hill, Hypochondriasis, pp.26-7.

132. Borsay, 'The English Urban Renaissance.'

133. Porter, 'Introduction' to Cheyne, The English Malady, xxxi.

134. See J.H. Plumb, The Commercialization of Leisure in Eighteenth-Century England (Reading: University of Reading, 1973), pp.18-19; Bath a Poem (London: Longman and Shewell, 1748), p.5.

Contrary to what used to be maintained by the type of medical historians like Veith and King, the early Georgian medical writings on hysteria and hypochondria involved a lot of new ideas, both in intellectual terms and, even more, in extra-intellectual terms. They departed from the former Pitcairnian research programme, employed the latest medical theories and were engaged in the first-class medical controversy of the age. They adopted the Cartesian scheme and some incorporated Newton's suggestions of the aether in their looking at the mind-body interaction, and treated the problem in a distinctly medical and non-metaphysical way, suggested by, above all, Boerhaave.

As for extra-intellectual aspects, their modernity is even more remarkable. They went to the market place à la Addison and Steele to preach their medical-scientific ideas. There they tried to instruct their readers into believing that they at last found the spleen, the mysterious mental disturbances, was nothing but a bodily disorder. They went further to claim that they found a new way to restore and improve mental health in a secular way--by taking care of and disciplining the body. They preached a new optimistic way to cope with mental disturbances: tame the body of the religiously undesirable people, and you will turn them into good Christians; take care of your body, and you will be a Newton. The body there was not the target of hatred and total denounciation: whipping oneself for salvation, Puritan rigorous fasting, and denying one's body for spiritual perfection were not what they prescribed. Instead, the body was to be put under mild and 'scientific' discipline: physicking, diet, exercise, temperance, spa water, etc. Convincing the patients and probably even the religious profession of the new method to improve the mind, they successfully contributed to spreading the medical knowledge and/or ideology.

Moreover, their construction of the medical discourse on the mental disorders encompassed much broader issues. They stepped into the environment, both natural and social, economical, political, and cultural. Hysteria and hypochondria were the diseases of wealthy, flourishing, polite,

civilized, commercialized, and politically advanced England. In a word, they were the diseases of the Enlightenment. The cure, too, of the English malady consisted in the Enlightenment ideals. An active, social, and cheerful life à la Addison and Steele could cure the disease of the inactive, solitary and meditative life. Even Cheyne who turned the picture upside-down to argue that the luxury urbane life engenders the disease did not preach aggressive country life, but prescribed going to Bath.

Chapter Four

Lockean Mind and Madness: Thinking Matter and Associationism

Introduction

a) Where was Locke in early eighteenth-century psychiatry?

Recent historians of eighteenth-century psychiatry agree that John Locke (1632-1704) was an important figure. Klaus Doerner has written that Locke provided a buttress to the Augustan bourgeois ideology in which the new psychiatry of hysteria developed; Roy Porter has claimed that Locke's psychology departed from the transcendental and tight dichotomy of the rational and irrational and created a new 'humanized' and relativistic version of the distinction; Michel Foucault refers to Locke several times as one of the backbones of the psychiatry in 'l'âge classique.'[1] Their arguments are convincing. As one of the major authors of the Enlightenment, Locke must have played an important part in forming a new intellectual climate in which the new psychiatry took place.

However, it is difficult to point out who was actually a Lockean psychiatrist at that time. In Hunter and Macalpine's Three Hundred Years of Psychiatry, there is an entry from Locke's own An Essay concerning Human Understanding published in 1690, and the next time that Locke's name appears in the book is in the entry of David Hartley's (1705-57) Observations on Man, which was published about sixty years later.[2] Porter's chronology of Lockeanism in eighteenth-century English psychiatry

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1. Klaus Doerner, Madman and the Bourgeoisie: a Social History of Insanity and Psychiatry (Oxford: Basil Blackwell, 1981), pp.22-23 & 31. Roy Porter, Mind-Forg'd Manacles: a History of Madness in England from the Restoration to the Regency (London: the Athlone Press, 1987), pp.187-95. Michel Foucault, Histoire de la folie à l'âge classique, 2nd ed. (Paris: Éditions Gallimard, 1972), pp.213, 228, 368.

2. Hunter and Macalpine, Three Hundred Years of Psychiatry, pp.236-39 & pp.379-82.

has also presented the same picture of the absence of any Lockean psychiatrist during the earlier half of the century. Although Porter argues that 'Locke's formulations proved extraordinarily influential throughout the eighteenth century,' the evidences he has produced are only from the latter part of the century.[3] We have, therefore, a surprising absence of Locke's influence in early eighteenth-century medical writings on madness.

A host of questions follow. What were English writers on the diseases of the mind doing with the work of 'the father of modern psychology,' the ultra-influential book containing seminal explanations of some aberrant mental operations, madness included?[4] Why was psychiatry unaffected when Lockean philosophy was giving a vast stimulation to philosophers and theologians?[5] Isn't it certain that Locke would have been fruitful to the psychiatry in the early eighteenth century, if one looks at late eighteenth- and early nineteenth-century psychiatrists such as Philippe Pinel (1745-1826), Thomas Arnold (1742-1816), and Alexander Crichton (1763-1856) who followed Locke's footsteps?[6] Why did doctors educated at English universities ignore Locke, whose Essay was

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3. Roy Porter, Mind-Forg'd Manacles, pp.191-92.

4. Locke has been frequently dubbed as the 'father', the 'founder' of 'psychology as the empirical science of the mind.' See, for example, Robert Watson, The Great Psychologists, 4th ed. (Philadelphia: J.B. Lippincott Company, 1978), p.186.

5. For the global account of the intellectual background against which Locke composed his Essay and the of the reactions against Locke's writings, John W. Yolton, John Locke and the Way of Ideas (Oxford: Clarendon Press, 1956) has remained unsurpassed since its publication.

6. Philippe Pinel, Traité médico-philosophique sur aliénation mentale ou la manie (Paris: Richard et al., 1801; rept. with intro. by François Azouvi, Gèneve: Édition Slatkin, 1980); Thomas Arnold, Observations on the Nature, Kinds, Causes, and Prevention of Insanity, 2 vols., 2nd ed. (London: Phillips, 1806); Alexander Crichton, An Enquiry into the Nature and Origin of Mental Derangement, 2 vols. (London: Cadell and Davies, 1798). All these writers made an explicit statement of their debt to Locke's ideas about the mind and madness. I will later discuss the issue of Locke's direct influence in chapter 6.

an important element in the first year compulsory course of logic in Oxford or Cambridge?[7]

b) The difference between Lockean mind and physicians' mind

These questions are, however, formulated from an anachronistic point of view.[8] The underlying wrong assumption is that the human mind studied by Locke, or, more generally, by eighteenth-century English philosophers, and that studied by medical writers on madness were the same object. I will briefly show that this assumption is wrong, and that the philosophers and physicians at that time constructed the human mind as the object of study in mutually exclusive ways.[9]

A very cursory look is enough to show that doctors and Locke were largely talking about differently constructed objects. As I have argued in the previous chapters, physicians were much more interested in bodily aspects of the issues related with the mental operations. The barrier

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7. Logic was one of the university disciplines in which Locke's influence was most visible. See John Yolton, 'Schoolmen, Logic and Philosophy,' in The History of the University of Oxford: The Eighteenth Century, eds. by L.S. Sutherland and L.G. Mitchel (Oxford: Clarendon Press, 1986), 565-91; John Gascoigne, Cambridge in the Age of Enlightenment (Cambridge: Cambridge U.P., 1989), passim; Wilbur Samuel Howell, Eighteenth-Century British Logic and Rhetoric (Princeton: Princeton U.P., 1971), pp.259-439.

8. For criticism of the old historiography of psychology, see Robert M. Young, 'Scholarship and the History of the Behavioral Sciences,' Hist.Sci., 1966, 5: 1-51; Roger Smith, 'The Background of Physiological Psychology in Natural Philosophy,' Hist.Sci., 1973, 11: 75-123. New approaches have been taken by Christopher Fox, 'Defining Eighteenth-Century Psychology: Introduction,' in Psychology and Literature in the Eighteenth Century, ed. by Christopher Fox (New York: AMS Press, 1987), 1-22; G.S. Rousseau, 'Psychology,' in The Ferment of Knowledge, eds. by G.S, Rousseau and Roy Porter (Cambridge: Cambridge U.P., 1980), 143-210.

9. For the construction of objects of discourse, see Michel Foucault, The Archaeology of Knowledge, trans. by A.M. Sheridan Smith (London: Tavistock, 1972; London: Routledge, 1989), pp.40-49.

between 'metaphysical' and 'medical' enquiries was fairly solid and physicians were reluctant to trespass the border, best expressed in the iatro-mathematicians' works and Boerhaave's advice not to think about purely mental phenomena: phenomena in which only the mind or soul was concerned were not the proper objects of medicine, but of philosophy or metaphysics.

This differentiation between philosophical and medical discourses on the mind was also claimed from philosophers' side. Locke himself duplicated the distinction at the very beginning of his Essay, declaring that he would not 'meddle with the physical consideration of the mind.' By the term 'the physical consideration,' Locke meant the following problems:

> by what motion of our spirits, or alterations of our bodies, we come to have any sensation by our Organs, or any ideas in our understandings; and whether those ideas do in their formation, any, or all of them, depend upon matter, or no.[10]

What kind of bodily changes cause our ideas; what is happening in our body when we see, hear, imagine, remember. Such questions frequently raised by many physicians were out of Locke's concern: 'These are speculations, which, however curious and entertaining, I shall decline, as lying out of my way.'[11]

Instead, he tried to limit his discourse to the task of describing how human mind gets ideas, handles them, connects and disconnects them,

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10. John Locke, An Essay concerning Human Understanding, ed. by Peter N. Nidditch (Oxford: Clarendon Press, 1975), 1.1.2.

11. Locke's keeping himself away from speculation about the physiology of thinking might be due to the fact that he adopted the empirical attitude of Sydenham, with whom Locke studied medicine in London from 1667, and whose influence upon Locke has been studied in detail. See, inter alia, Kenneth Dewhurst, John Locke, Physician and Philosopher (London: The Wellcome Historical Medical Library, 1963; rept. New York: Garland, 1984); Patrick Romanell, John Locke and Medicine (New York: Prometheus Book, 1984).

makes use of their signs, i.e. words, and reaches true or false or dubious judgments based on them.[12] This he did with minimal 'physical consideration,' or little recourse to the physiological processes which accompany the mental processes.[13] Locke's assumption was that the mind handling the ideas and the mind seen from the 'physical' viewpoint were categorically different objects of study.[14]

Although Locke was not always loyal to this restriction imposed by himself on the scope of the subject of his Essay, he was consistent in not picking up the bodily side of thinking as a major topic. None of his works published in the eighteenth century contains as substantial an account of physiology of thinking as Descartes' De l'homme (1662), Malebranche's Recherché de la verité (1674-8) and Willis's De Anima Brutorum (1672). It is true, that Locke's Essay makes an occasional use of the theory of the animal spirits drawn probably from Malebranche and Willis and enters

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12. Locke, Essay, 1.1.3.

13. I am here neither arguing that Locke was not knowledgeable in late-seventeenth-century physiology, nor his Essay is free from any 'physical consideration.' A lot of studies on the philosopher have shown quite reverse. See John W. Yolton, Locke: an Introduction (Oxford: Basil Blackwell, 1985), p.18; idem, Thinking Matter: Materialism in Eighteenth-Century Britain (Oxford: Blackwell, 1983), 157-60; John P. Wright, 'Locke, Willis and the Seventeenth-century Epicurean Soul,' in Atoms, Pneuma, and Tranquility: Epicurean and Stoic Themes in European Thought, ed. by Margaret J. Osler (Cambridge: Cambridge U.P., 1991), 239-58. Similarly, John Wright, The Sceptical Realism of David Hume (Manchester: Manchester U.P., 1983), pp.187-246 has thrown fresh light on Hume's works by looking at the contemporary physiological background.

14. Locke, Essay, 4.21.1-5. Accordingly, the two 'minds' were distributed into two different subjects within the university educational system of the day, one being logic, the other natural philosophy. Locks's Essay entered into university curriculum in the early eighteenth century as the textbook of logic, replacing Neo-Aristotelian and Ramist ones. Medicine, on the other hand, was a branch of natural philosophy within the educational system of university. For the reception of Essay as a textbook of new logic, see Yolton, John Locke and the Way of Ideas; idem, 'Schoolmen, Logic, and Philosophy'; Howell, Eighteenth-Century British Logic and Rhetoric.

into the 'physical considerations' of the mind. But Locke's use of physiological explanation of mental operations in his Essay does not seem to have been the significant part of the work for his contemporary medical readers. Some physicians in the early eighteenth century consulted Locke's Essay as a guide to conduct medical thinking, that which would teach them how to get scientific knowledge.[15] To use the book as the authority in medical and bodily understanding of the mind/soul did not occur to them.

It is, therefore, understandable that Locke's works did not exercise an immediate and direct influence upon physicians' understanding of the mind and its disorders. The absence of Locke in the chronology of British psychiatry during the earlier half of the eighteenth century is not a mystery, if one considers: the mental restriction Locke made upon his works and the somatic limits upon eighteenth-century medicine; their talking on different planes of the human mind; and the distribution of the two 'minds' into the different disciplines or categories of discourse. The mystery rather lies in the very visible and direct influence of Locke on the psychiatrists in the late eighteenth and early nineteenth century, which will be discussed later in this thesis.

c) Problems: two coups in the earlier eighteenth century

There were, however, some occasions where early eighteenth-century English psychiatric writings confronted Locke's Essay. The confrontations then were mainly concerned with Locke's suggestion of the thinking matter hypothesis which raised the question of whether matter

15. See, for example, John Quincy, Medicina Statica: being the Aphorisms of Sanctorius (London: W. Newton, 1712), xi; Samuel Clossy, Observations on Some of the Diseases of the Parts of the Human Body, Chiefly Taken from the Dissections of Morbid Bodies (London: G. Kearsly, 1763), iii-iv.

can think or not.[16] Since Locke's thinking matter hypothesis drew an avalanche of protest, it is not surprising that the encounter was not a favourable one: medical writers such as George Cheyne (1671-1743), Nicholas Robinson (1697?-1775), and Malcolm Flemyng (d.1764) joined the controversy and refuted the materialist scheme.[17] This is actually an old story of refuting materialistic monism and establishing non-materialistic and dualistic explanations of the human mental operations and mental disorders, which I have looked at in chapter one. The old battle which Timothy Bright (1551-1615), André du Laurens (1558-1609), and other physicians had fought continued well into the eighteenth century. The works of Cheyne and Robinson, however, involved an important revision of the fundamental scheme of the dualism, and it was related with the new pattern of dualism held by some metaphysicians then. One of the major aims of this chapter is to examine the content of the coup in the early- and mid-century.

Another principal aim of the chapter is to contextualize some aspects of David Hartley's project in his Observations on Man (1749) into the situation sketched above. I would like to argue that Hartley's project involved again a radical departure--another coup--from both the scheme expressed by Locke and many other philosophers of his time and that held by Cheyne and Robinson and those philosophical and theological writers who expressed the same concern with the physicians. Hartley pioneered

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16. See an excellent account of the controversy by John Yolton, Thinking Matter; idem, John Locke and the Way of Ideas, pp.158-66.

17. George Cheyne, An Essay on Regimen, together with Five Discourses, Medical, Moral and Philosophical (London: C. Rivington, 1740); idem, The Natural Method of Curing the Diseases of the Body, and the Disorder of the Mind Depending on the Body (London: Geo. Strahan, 1742); idem, Philosophical Principles of Religion: Natural and Revealed (London: George Strahan, 1715); Nicholas Robinson, A New System of the Spleen, Vapours and Hypochondriack Melancholy (London: A. Bettesworth, 1729); Malcolm Flemyng, A New Critical Examination of an Important Passage in Mr. Locke's Essay on Human Understanding (London: Jacob Robinson, 1751).

a new field of discourse which can be called, in Roger Smith's term, 'physiological psychology.'[18] In a word, Hartley tried to make a new general science of man which underpinned Locke's language with that of physicians', building a bridge over the two different categories of discourse on the mind. And Hartley's attempt was followed by both medical and non-medical writers both on the Continent and in England, some inspired by him and some independently.

In brief, there were two complicated coups in the earlier half of the eighteenth century. Neither of the two was completely new. Cheyne and others were playing the old game of refuting materialists' polemical use of madness, and Hartley's main devices of his physiological psychology--Newton's vibration and Locke's association--had been fairly established ideas in the English intellectual scene at that time. Both coups, however, involved new schemes to understand the mind and its disorders. In the following sections I will discuss the content of the two shifts outlined above. In the first section I will examine the problem of madness which appeared in the medical and philosophical tracts related with the thinking matter controversy in the earlier part of the eighteenth century. The second section will consider Hartley's new scheme for understanding human mental operations and similar French and English attempts in the mid-century.

Thinking Matter Controversy: Materialism and Pneumatology

a) Locke's hypothesis, its supporters and critics

The thinking matter hypothesis suggested by Locke turned out to be one of the most hotly disputed Lockean philosophical topics during the eighteenth century. From the medical historical viewpoint, it overshadows other topics associated with Locke, such as the rejection of innate idea, the

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18. Smith, 'The Background of Physiological Psychology.'

argument on personal identity, and the doctrine of association of ideas.[19] The controversy had its origin in Locke's carefully composed passage in his Essay, which said that it is intelligible that God 'superadded' the power of thinking to matter.[20] Given our inability to know the nature of substances, thinking matter monism is no less (and no more) intelligible than the soul-and-matter dualism.

Soon after Locke made the suggestion, there rose a coterie of thinking materialists, who were at the same time deistic, free-thinking and sometimes freemasonic, e.g. Anthony Collins (1676-1729), John Toland (1670-1722), and Samuel Bold (1649-1737).[21] At the early stage of the controversy, this circle produced a good amount of materialistic polemic: Collins' debate with Samuel Clarke; Bold's refutation of John Broughton's Psychologia; and Toland's pantheistic and animistic writings.[22] Outside the circle, some obscure writers such as William Coward (1657-1725) and

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19. For personal identity, see Henry E. Alison, 'Locke's Theory of Personal Identity: a Re-Examination,' in Locke on Human Understanding, ed. by I.C. Tipton (Oxford: Oxford U.P., 1977), 105-22; Howard M. Ducharme, 'Personal Identity in Samuel Clarke,' Jour.Hist.Phil., 1986, **24**: 359-83; Christopher Fox, 'Locke and the Scriblerians,' Eighteenth-Century Studies, 1982, **16**: 1-25. Nicholas Robinson, however, provided a substantial amount of argument on personal identity. See Robinson, A New System of the Spleen, pp.36-40.

20. Locke, Essay, 4.3.6. See Yolton, Thinking Matter; Wright, 'Locke, Willis, and the Epicurean Soul'; Margaret Wilson, 'Superadded Properties: the Limits of Mechanism in Locke,' American Philosophical Quarterly, 1979, **16**: 143-50.

21. James O'Higgins, Anthony Collins: the Man and His Works (Hague: Martinus Nijhof, 1970); Margaret C. Jacob, The Radical Enlightenment: Pantheists, Freemasons and Republicans (London: George Allen & Unwin, 1981).

22. See Yolton, Thinking Matter, pp.38-42; Robin Attfield, 'Clarke, Collins and Compounds,' Jour.Hist.Phil., 1977, **15**: 45-54; O'Higgins, Anthony Collins, pp.10 & 69-76; Jacob, The Radical Enlightenment, passim.

Henry Layton (1622-1705) were active in developing materialistic polemic.[23] Shortly after, Samuel Strutt, another obscure writer, published A Philosophical Enquiry into the Physical Spring of Human Action (1731) to maintain that the substance of man is nothing but a modification of matter, denying the existence of the rational and immaterial soul.[24]

Locke's suggestion and the materialistic pamphlets largely inspired by Locke triggered a storm of protest. Edward Stillingfleet (1635-99), Bishop of Worcester, levelled a vehement criticism of Locke, accusing him of paving an easy way to atheism; alarmed at the materialist, Richard Bentley (1662-1742) gave his second Boyle lecture the title of Matter and Motion Cannot Think (1692).[25] In his Psychologia, John Broughton launched an attack against the 'partisans of Spinoza, Hobbs, Le Clerc, L--k [sic], and Toland.'[26] Andrew Baxter (1686-1750) published several books

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23. William Coward, Farther Thoughts concerning Human Soul (London: Richard Basset, 1703); idem, Second Thoughts concerning Human Soul, Demonstrating the Notion of Human Soul, as Believed to Be a Spiritual Immortal Substance to Be a Plain Heathenish Invention (London: R. Basset, 1702); idem, The Grand Essay: or a Vindication of Reason, and Religion, against Impostures of Philosophy (London: P.G., 1704). Henry Layton attacked Richard Bentley and John Broughton in his Observations upon a Sermon, Intituled, ... Matter and Motion Cannot Think [1692] and Observations upon a Treatise, Intitl'd Psychologia [1703]. For Leyton's view, See Yolton, Thinking Matter, pp.36-39. Collins wrote about Coward's Grand Essay to Locke that 'he has published a book to show yt not such thing as immaterial substance exists in nature and yt all matter has originally a principle of self-motion in it. His argument are very far from proving either.' Quoted in O'Higgins, Anthony Collins, p.5.

24. [Samuel Strutt?], A Philosophical Enquiry into the Physical Spring of Human Actions, and the Immediate Cause (London: J. Peck, 1732). For Strutt and his pantheistical circle, see Jacob, The Radical Enlightenment, p.174.

25. Locke's debate with Stillingfleet is discussed in Yolton, Locke and the Way of Ideas; idem, Thinking Matter. See Richard Bentley, Matter and Motion Cannot Think (London: T. Parkhurst, 1692), p.14.

26. John Broughton, Psychologia: or an Account of the Nature of the Rational Soul (London: T. Bennet, 1703), p.139. Collins wrote to Locke about the book that it is 'a discourse about nothing.' (quoted in O'Higgins,

to refute the materialists from the 1730s, some of which went through several editions.[27] The core of their arguments was that God cannot provide matter with the power of thinking without destroying the nature of the matter, hence, that thinking matter is a logical absurdity God would never create. Another concern as important to them was an ideological one. They feared that the doctrine would invite a degeneration of people's morality; should there be no immaterial and immortal soul, there would not be no fear for divine punishment after death. They thought that the thinking matter hypothesis was morally dangerous as well as logically wrong.[28]

b) Can the soul go mad?: metaphysician's opinion

The thinking matter controversy sometimes included the issue related with the problem of madness.[29] The essence of the problem remained the same with the controversy in the late sixteenth and early

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Anthony Collins, p.5).

27. See Andrew Baxter, An Enquiry into the Nature of the Human Soul, 2nd ed., 2 vols. (London: for the Author, 1737); idem, An Appendix to the First Part of the Enquiry into the Nature of the Human Soul (London: for the Author, 1750). Immediately after the publication of Baxter's Enquiry, John Jackson, rector in Rossington in York and master of Wigston's Hospital in Leicester, published A Dissertation on Matter and Spirit: with Some Remarks on a Book, Entitled, An Enquiry into the Nature of the Human Soul (London: J. Noon, 1735), to attack Baxter. Jackson, however, found neither thinking matter monism nor Baxter's dualism are demonstrable. Moreover, he wrote that immortality is the foundation of morality is a bigot. Baxter's and Jackson's works are exceptionally readable and acute among the works I have consulted.

28. Yolton, Thinking Matter, Chaps. 1-3.

29. Besides the issue of madness, the controversy had some issues of interest for medical historians, such as the animal soul, the nature of sleep and dreaming. See Locke, Essay, 2.1.9-20; Thomas Branch Thoughts on Dreaming (London: R. Dodsley, 1738); Robinson, A New System of the Spleen, pp.34-5.

seventeenth century: how can the immaterial power of thinking be impaired by material causes? Is it possible for the soul, that immortal and imperishable being, to corrupt in madness? Doesn't the example of madness serve as a negative evidence against the immateriality and immortality of the soul? Isn't it even more strange that the disease of the soul can be cured by such somatic methods as purging and medication?

The materialist polemic based on the case of madness was powerfully put forth by William Coward in his Second Thoughts concerning Human Soul (1702). Coward's aim in this book was to demonstrate that there was no immaterial and immortal soul, the soul was identical with the material principle of life, and the soul died when the life ended. The immortality of human soul was a 'heathenish invention' and 'imposture of philosophy' and immortality was given only by divine intervention upon resurrection: the Bible too confirmed that 'man's immortality begins not until the resurrection.'[30]

To support his argument, he provided many argumentative devices, one of which was the instance of madness. He started by establishing that the principal mental faculty of understanding, which was alleged immaterial, was destroyed in madness: during madness, 'that essential faculty of the soul [understanding] perishes, and a man cannot reason or act rationally, as we say, but like a brute beast.'[31] Although Coward admitted 'madmen and fools' would have 'some sudden footsteps or flashes of reason,' he treated such a case just as an exception. He claimed that

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30. Coward, Second Thoughts, p.177. Little is known about Coward. DNB says he was elected a Fellow of the College of Physicians, and the book was burned by a common hangman by the order of the House of Commons in 1704. He is also known as a controversialist in the acid-alkali debate in the turn of the century. See Harold J. Cook, 'Sir John Colbatch and Augustan Medicine: Experimentalism, Character and Entrepreneurialism,' Ann.Sci., 1990, 47: 475-505, esp., 495-6.

31. Coward, Second Thoughts, p.133.

it was evident even in such cases that the 'understanding or intellectual faculty perishes.'[32]

On the basis of the observation, Coward proceeded to the core of his polemic:

> That being whose essential parts are perishable, is mortal and corruptible: but the essential parts of the soul, viz. understanding is perishable. Ergo, the soul it self is mortal or corruptible.[33]

Here Coward reproduced the old Lucretian materialist polemic I have looked at chapter one. Following Lucretius, Coward also employed cure of madness as another evidence against the immateriality of the soul:

> If such medicine afflict the body, it is still but a delusion to attempt thereby to cure the mind, and you may as well damn up a current to stop the fountain head. Therefore seeing experience testifies such diseases frequently curable and cured, reason confirms the impossibility of the existence of such an immaterial substance.[34]

Drawing attention to the widely accepted facts that the mind became deranged by bodily and material causes, and that the deranged mind was cured again by material method, he argued that there was no such things as immaterial and immortal soul, but that the soul was one and the same with the material principle of life.[35]

This renewed Lucretian mortalist polemic based on the example of madness posed a great threat to mid-century metaphysicians. Andrew

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32. Coward, Second Thoughts., p.136.

33. Coward, Second Thoughts., p.133. See also idem, The Grand Essay, pp.2 & 130.

34. Coward, The Grand Essay, p.1.

35. Coward, Second Thoughts, pp.90-95.

Baxter admitted that this argument from the materialists' side made out a strong case against the immortality of the soul. Baxter was annoyed at the 'modern sceptic' (almost certainly he thought of Coward here) who quoted Lucretius' argument based on the observation that 'in some distempers of the body [the soul] is delirious and mad' and that 'the power of medicine cures it again.' He was afraid that 'this objection is so plausible, that the generality of men allow it to be matter of fact.'[36]

To this powerful assault on the immateriality of the soul, their opponents sometimes answered that bodily disorders did not always spoil the intellectual faculties of the soul: 'there are instances of mortal diseases, which do not at all affect our present intellectual powers.'[37] They did not find this answer satisfactory, however. They prepared an iron-hard counter-argument, which enabled them to claim that disturbances of reason did not demonstrate corruptibility and materiality of the soul. In his Psychologia which was directed mainly against Coward's Second Thoughts, Broughton argued that disorders in our actual reasoning involved only changes in the mode of the soul, and the example of madness was thus not relevant to the issue whether the essential part of the soul was corruptible or not.[38] John Balignac, the Archbishop of Cambrai, had the same sort of materialist polemic in mind when he wrote An Essay ... Proving the Immateriality of the Soul, and made use of the centuries-old metaphor of a musician and his instrument.[39] Andrew

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36. Baxter, An Enquiry, vol.1, pp.382-83 & p.386.

37. Joseph Butler, The Analogy of Religion Natural and Revealed (1736), in The Works of Joseph Butler, 3 vols. (Oxford: Clarendon Press, 1896), vol.1, p.40.

38. John Broughton, Psychologia, pp.199-200. As for the counter-criticism by Coward to Broughton's argument here, see Coward, The Grand Essay, pp.223-26.

39. John Balignac, An Essay Founded upon Arguments Natural and Moral, proving the Immateriality of the Soul (London: L. Gilliver, 1730), pp.28-29. I could not identify the author. For the use of the metaphor, see Baxter, An Enquiry, vol.1, pp.386-87; George Cheyne, The English Malady (1733),

Baxter expressed the old notion that the fault lay in the images and the soul was mis-informed by them.[40] According to these controvertialists, madness only showed that the soul got a wrong instrument of the body or the unreal image, and it remained itself intact during madness. Here again, we see continuity from the seventeenth century. Eighteenth-century metaphysicians promoted the same framework of the dualism of the soul and the mind: the former was intact and only the latter was the seat of madness. Immortal and imperishable, the soul per se never becomes mad.

On closer scrutiny, however, one can detect a new pattern of anti-materialist polemic, and a definite shift in the way in which the immateriality was vindicated.

In seventeenth-century discourse, what remained intact was the rational faculty, and what got a damage was the bodily and inferior faculties. André du Laurens concluded that in delirium it was the imaginative faculty, rather than reason, that was primarily distempered. Even if the reasoning seemed to suffer, it only appeared so, because the faculty of reason was 'misse-informed by a fayned fantasie.'[41] The author of Anthropologie Abstracted (1655) confirmed this faculty-based framework of intactness of the soul:

> although the understanding faculty doth suffer depravation in diseases of the brain; yet that depends on no other reason, then

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intro. by Roy Porter (London: Routledge, 1991), p.69.

40. Baxter, An Enquiry, vol.1, pp.387-95.

41. André du Laurens, A Discourse of the Preservation of the Sight (London: Ralph Iacson, 1599), p.74. See Thomas Harmon Jobe, 'Medical Theories of Melancholia in the Seventeenth and Early Eighteenth Centuries', Clio Medica, 1976, 11: 217-31.

that the subordinate, and subministry faculties, which are organicall and interessed in the constitution of the braine, are injured.[42]

Michael Etmueller (1644-1683) also wrote that 'the intellect or rational faculty being immaterial, cannot be vitiated of itself by any morbific cause.' Locke epitomized the attitude: he maintained the actual faculty of reasoning in madmen was intact and they could perform syllogism perfectly.[43] When looking at mental disorders, they were differentiating immaterial and interactive faculties, vindicating the intactness of the former and attributing all, or at least principal, faults to the latter.[44]

On the other hand, the eighteenth-century writers adopted different tactics. They no longer looked for a purely immaterial and non-interactive mental activity that took place without the body. Rather, they recast the very notion of interaction. They started from restructuring their fundamental scheme, i.e. redefining the essence of the soul. Broughton denied that the essence of the soul consisted in 'actual cogitation,' maintaining that there must exist 'a substratum or substance' on which the operation of actual thinking took place. This 'substance' was the essential

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42. Anthropologie Abstracted: or the Idea of Humane Nature (London: Henry Herrington, 1655), p.15.

43. Michael Ernst Etmueller, Etmueller Abridg'd: or a Complete System of the theory and Practice of Medicine (London: E. Harris et al., 1699), p.532; Locke, Essay, 2.11.13.

44. In general vindication of immortality, too, many major philosophical and medical figures like Descartes, Gassendi, Charleton and Willis were in search of the immaterial faculty, the part of human mental activity which does not depend on the body. See René Descartes, Discourse on the Method, in The Philosophical Writings of Descartes, 3 vols., trans. by John Cottingham et al. (Cambridge: Cambridge U.P., 1984-91), vol.1, p.127; John Cottingham, 'Cartesian Trialism,' Mind, 1985, **94**: 218-30; Emily Michael and Fred S. Michael, 'Two Early Modern Concepts of Mind: Reflecting Substance vs. Thinking Substance.' Jour.Hist.Phil., 1989, **27**: 29-48; Walter Charleton, The Immortality of the Human Soul, Demonstrated by the Light of Nature (London: Henry Herringman, 1657), p.67; W.F. Bynum, 'The Anatomical Method, Natural Theology, and the Functions of the Brain,' Isis, 1973, **64**: 445-69.

part of the mind, and our reasoning was a mere 'mode' or 'operation' of it. The essence of the soul was, therefore, something immaterial that stands behind our actual operations of the soul. Significantly, Broughton's target of criticism here was Descartes: drawing a keen distinction between the present operations of the soul and the substratum of the operations, Broughton wrote that Descartes was wrong when he 'placed the essence of the soul in actual thought.'[45] Since all our mental operations were mere modes of the soul, the Cartesian cogito did not constitute the essence of the soul. The operation of the soul in its union with the body, was not the essence of the substance, but a mere 'attribute, property, or quality' of the substance in question, and the immateriality did not resides in the actual operation, but in the substance.[46]

The scheme introduced two rigidly distinguished groups of the powers of the soul, a) our actual mental operations in this world, during the soul's union with the body, and b) the immaterial substance's original powers in the other world, after its separation from the body. These two fields were not on the same level, but the latter was thought superior to the former: our actual mental operations were but an obscure, incomplete, and inferior shadow of the original and other-worldly powers of the immaterial substance. Accordingly, Balignac claimed that our mental capacity would be greater in proportion to its disengagement from the body, and that the full powers of the soul would become manifest only in its separation from the body:

> The more it [the soul] is disengaged from matter, and retired from the senses, the more capable it is to perform its most exalted operations, and consequently, by an absolute separation, it is so far from perishing, that it ascends to its perfection.[47]

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45. Broughton, Psychologia, p.199.

46. Broughton, Psychologia, p.8.

47. Balignac, An Essay...Proving the Immortality of the Soul, p.30.

The soul was, therefore, endowed with its original powers independent of the body, and the body lessened the original powers to our present mental operations. It was hence absurd to misunderstand the impediment made by the body for the producer of our mental operations was absurd:

> To imagine, that the soul in the present state cannot understand clearly without the convenient disposition of the body, therefore it cannot act at all without it, is as absurd as to fancy, because a man confined to a chamber can't see the objects without, but through the windows, therefore he can't see at all, but through such a medium; and that when he is out of the chamber he has totally lost his sight.[48]

Baxter also wrote 'that the soul after death is not in a state of insensibility, torpor, or deadness; but still remains an active being, when separated from the body.'[49] Activity consisted in the soul, inactivity in the body. The ultimate cause of our activity, therefore, resided in the soul. Anything that lessened the soul's original active powers would be bodily.

In the argument looked at above one can detect a subtle shift from the former faculty-based argument for immateriality to the substance-based one. In the new scheme, the question of whether actual reasoning of a madman is damaged was not in conflict with the argument over the immateriality of the soul. What was intact was the hidden, latent and original powers of the soul.

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48. Balignac, An Essay ... Proving the Immortality of the Soul, p.30. The metaphor of the body as a chamber and sense organs as a window is found also in Voltaire, Philosophical Dictionary ed. and trans. by Theodore Besterman (Harmondsworth: Penguin, 1972), pp.210-11.

49. Baxter, An Enquiry, vol.1, p.248. In ibid, p.257, Baxter wrote: 'if the soul hath the power of action in a state of separation, we must say that it hath it always, and without interruption, since it hath it in itself, and independent of matter.' [my emphasis]

c) Medical pneumatology in the early eighteenth century

The metaphysical framework delineated above can be found in an almost identical form in some of the Augustan medical writings. The physician who made the most heavy use of the device was George Cheyne, a disciple of Edmund Law (1703-87) and himself an able metaphysician even before he knew Law.[50]

Attacking the materialist scheme which said 'the principle of both parts of the compound [the mind and body] were one, or if the whole had but a material or organical part,' he claimed that the soul, or the intelligent principle, was instead 'of a very different, if not quite contrary, nature from this organical machine and has scarce anything in common to them, but as they are substances.'[51] And just like in Broughton's, Balignac's and Baxter's writings, this immaterial substance was regarded as an other-worldly and transcendental being. Indeed, Cheyne used more religious and metaphysical language to characterize it than the metaphysicians discussed above: man's soul is a 'diminutive angel shut up in a flesh prison or vehicle'; the immaterial substances are 'miniatures, effluxes, emanations, infinitesimals, or infinitely small sparkles' of God that is 'this infinite source of living, intelligence, action, perfection and happiness.'[52]

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50. The relation between Cheyne and Law is briefly discussed in B.C. Tennant, 'The Anglican Response to Locke's Theory of Personal Identity,' Jour.Hist.Ideas, 1982, **43**: 73-90, esp. 87-89. Cheyne referred to Law as a genius of Newton's stature in his An Essay on Regimen, pp.166-67.

51. Cheyne, The English Malady, pp.68-9. There he stated the case of Colonel Townshend (ibid, pp.307-11) in which the patient could live and die at his will is a support of dualism. See also idem, The Natural Method, pp.78-79; idem, An Essay on Regimen, p.147, idem, The English Malady, pp.4 & 69.

52. Cheyne, An Essay on Regimen, p.120, and The Natural Method, p.79. The analogy of the soul as the 'infinitesimal' of God appeared first in his Philosophical Principles of Religion: Natural and Revealed, based on the mathematical notion of infinity. Edmund Law, Cheyne's metaphysical

Acquisition of knowledge about this transcendental thing belonged to a different domain of discourse from that of getting knowledge about things in this world. We cannot attain perfect knowledge of the soul because our mind has lost its power by its union with the body: 'we shall never perfectly know [the substance], till we arrive at the world of spirits, and drop this coarse earthly tabernacle.'[53] Human reason, the usual arbiter in our pursuit of knowing this-worldly things, is not of help here. To try to know the soul by reason was, Cheyne claimed, like trying to 'taste colours and look into sounds.'[54] Following probably William King (1650-1729), who maintained that all our knowledge of God and his attributes was analogical, Cheyne claimed that we must rely on the method of analogy to understand the nature of the soul. Just as we reach some knowledge about an infinite number by proceeding by analogy from our knowledge of finite numbers, we have to achieve knowledge about the other-worldly soul by proceeding from our knowledge of the mental operation in this world. Knowing our own actual mental operations and knowing the original powers of the soul involved two distinguished methods of study.

In terms of recognizing them, therefore, the real mental operations are given priority to the hidden original powers of the soul: the latter is only known by way of analogy from the former. Whereas in terms of ontology, the latter is given an absolute precedence to the former: our actual mental operations are but an inferior mode of the original powers of the soul. Since the soul must be endowed with the original powers

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mentor, expressed almost the same sentiment that 'the soul ... must have the nature and likeness of God in it.' (Cited in Tennant, 'The Anglican Response to Locke's Theory of Personal Identity,' 89.) See also Robert Eberwein, 'Samuel Johnson, George Cheyne, and the "Cone of Being"', Jour.Hist.Ideas, 1975, **36**: 153-158.

53. Cheyne, An Essay on Regimen, p.123.

54. George Cheyne, Philosophical Principles of Religion: Natural and Revealed, p.63.

independent of the body, it is active without the body. Elaborating the metaphysical scheme of the active soul and inert body, Cheyne wrote that the spiritual substance had more perfect powers in a 'pre-lapsarian and paradisaical' state, but it could not exercise its original powers in these degenerated circumstances, when it was 'newly clothed with a crass, unactive tabernacle or prison' of the body.[55] And this body-prison was understood again as something that limited the powers of the soul which would be greater in a separate state:

> In this our own lapsed state, our gross and earthly prisons were designed by infinite Wisdom, to curb, concentrate, and restrain the exalted functions of the radical and intellectual faculties.[56]

Our own mental operations are therefore the soul's original activity minus the impediment on it by the body. The two distinguished categories of the activity of the soul were put in a hierarchical relation: one was concerned with the primary, superior, divine, aspects of the soul and the other was the secondary, inferior, diminished, and this-worldly shadow of it.

Cheyne's account of madness fits in well with the scheme. Given that the body does harm to the original powers of the soul in its healthy state, it must damage our mental operations even more when diseased. Cheyne, therefore, could not find an account of 'ideotism, stupidity, loss of senses, memory, or judgment, for lunacy or madness' but an 'obstruction, extinction, relaxation, or malformation of the proper organs.'[57] And during these instances of derangements of the mind, the original powers of the soul remain intact:

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55. Cheyne, Philosophical Principles of Religion, pp.160-61.

56. Cheyne, An Essay on Regimen, p.166.

57. Cheyne, The Natural Method, p.78.

> The radical qualities of ... intelligence may be invariable in the rank and degree proper to such a species of spiritual nature, whatever machine or bodily organ it be cloathed with. Only it cannot exert its elicit or exterior acts without a proper machine.[58]

Note that what is intact here is not the operations of our actual reasoning but is the 'radical qualities of intelligence,' by which Cheyne meant pre-lapsarian power of the soul that would become manifest only after its separation from the body.

Probably we have to understand Cheyne's thin diet in this metaphysical scheme of the interaction. The body, by its very existence itself, impedes the exercise of the original powers of the soul. Baxter wrote that 'the body cannot give [the soul] less impediment in acting and perceiving, even when best disposed, than none at all.'[59] The notion of the body as an impediment is lurking behind Cheyne's rigorously thin diet for improving one's intellect. Slender, scant, thin, delicate fibres make acute mind, and gross and fat ones obstruct thinking; Newton maintained his high ability of thinking 'by extreme temperance and abstinence'; too much food would produce wrongheadedness and idiotism.[60] These therapeutics states that the less the body is, the more perfect the mind is.

The difference between personal intelligent powers was explained likewise. Cheyne developed what might be termed a neurophysiology of genius. What makes the difference between Newton and a village idiot is the different compositions of their bodies, especially of intellectual organs: 'what men call a genius, or a man of fine natural parts, a hero, or a philosopher is much owing to the perfection of the machin or vehicle and

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58. Cheyne, An Essay on Regimen, p.159.

59. Baxter, An Enquiry, vol.1, p.263.

60. Cheyne, The Natural Method, pp.81-82.

its spiritual and ethereal organs.'[61] This bodily determination of one's intellectual power was reinforced by the claim that all human minds are in themselves equal. When every mind is equal, a principle of differentiation must be nothing but the body that contains the mind. 'The differences between an idiots and the most enlarg'd understanding ... arise from the different mechanical affections of matter and motion,' for, Nicholas Robinson stated, 'their souls are the same.'[62] The same idea was expressed in a poem entitled An Essay on the Soul of Man (1744):

> The soul, althou' in human kind the same,
> Yet various seems, in every various frame,
> The model of the fabric, where it dwells;
> 'Tis wrong, or right; it fails, or it excells;[63]

Although Cheyne's medical writings are in many respects much more religious and metaphysical than his contemporaries', the almost exactly the same argument can be found in Nicholas Robinson's A New System of the Spleen, as I have mentioned just above. In the book, Robinson explicitly refuted the thinking matter hypothesis. The mental

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61. George Cheyne, An Essay on Regimen, p.164. See also ibid., p.166; Charles Collignon, An Enquiry into the Structure of the Human Body, Relative to Its Supposed Influence on the Morals of Mankind (Cambridge: J. Bentham, 1764). Collignon was professor of anatomy at Cambridge, and in this work, he talked about blood, fibres, nerves, old age, habit, education and fashion as influential on man's mind.

62. Robinson, A New System of the Spleen, p.34. Richard Blackmore, too, wrote in his A Treatise of the Spleen and Vapours: or Hypochondriacal and Hysterical Affection... (London: J. Pemberton, 1725), pp.256-57, 'Those who believe that Minds are in themselves equal, ... will be ready to embrace a mechanical explanation of the inequality of human understanding.' See also his The Nature of Man, a Poem (London: Sam. Buckley, 1711), pp.1-17, in which he attributes the different intellectual powers of different nations to the natural environmental factors, as I have discussed in the previous chapter.

63. An Essay on the Soul of Man (London: Jacob Robinson, 1744), p.3.

faculties of perception, reason, understanding, and memory must be 'supported upon a substratum,' which is an immaterial substance. For these faculties cannot be produced from matter and motion, 'nor can it be any of the property superadded to certain parcels of matter, according to a suggestion of Mr. Locke.'[64]

And the substance was again other-worldly and unknowable, and the original powers of this substance were superior to its actual operations:

> These little spots of Earth, human machines, to which we are chain'd, ... are the causes why we cannot discover the nature of this spiritual being, and why its moving power is so greatly suspended in its action: but were it once unfettered from the bondage of these shackles, it would naturally rise, and takes its seat in the proper ubi of this immense theatre, ordain'd the happy mansion of spirits, by the sovereign director of the universe.[65]

This original power was intact during any instance of mental disorder. Although 'the instruments, by which this immaterial being acts, seem to alter the Soul's operation,'

> this spiritual substance we call the soul, under all the pressures of the most violent fever, under the severest symptoms of the most raging madness, ... is the same mind, the same self, the same ray of divinity, that almighty God infused, when he form'd it a living soul.[66]

Here again, what remains uninjured is not the faculties of reasoning but the 'spiritual substance,' 'the same ray of divinity.' Robinson formed his

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64. Robinson, A New System of the Spleen, pp.51-52.

65. Robinson, A New System of the Spleen, pp.29-30.

66. Robinson, A New System of the Spleen, pp.33-34.

idea of the soul and madness within the same structure as Cheyne, Broughton, Baxter and Balignac thought.

This medical and metaphysical scheme of the immaterial substance, its original superior powers, and bodily impediments survived well into the late eighteenth century.[67] William Smith's Dissertation upon the Nerves (1768), made use of an almost identical formulation: denying thinking-matter hypothesis, positing transcendental unperishable soul, claiming that the mental operation in this world is dependent on the body, and arguing that madness does not affect the original powers of the soul.[68] A Dissertation upon the nervous system to Show Its Influence upon the Soul, an anonymous tract published as late as 1780, also wrote that when mental faculties were disordered, the change was not made in the soul itself. The soul remained the same through the 'mechanical affections of matter and motion.'[69]

d) A new pattern of dualism and its paradox

The new scheme of dualism adopted by many early eighteenth-century physicians and metaphysicians was far from empirical and 'scientific,' in the sense that it was based on the very other-worldly, essentially unknowable and highly theological Being. There was, however, another side in their scheme. Paradoxically enough, the scheme developed

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67. Richard Blackmore's 'An Essay upon the Immortality of the Soul,' in Essays upon Several Subjects, 2 vols. (London: E. Curll et al., 1716), vol.1, pp.291-351, contains some passages which look similar to the metaphysical scheme. see pp.297 & 350. Blackmore, however, made use of Cartesian faculty-based argument in ibid., p.351.

68. William Smith, A Dissertation upon the Nerves (London: for the Author, 1768). This included the refutation of thinking matter hypothesis (pp.5-6). Although the author published many medical works in the 60s and the 70s, little is known about him.

69. A Dissertation upon the Nervous System to Show Its Influence upon the Soul ([London]: for the Author, 1780), pp.49-51.

the bodily interpretation of mental phenomena which I have examined in the previous chapter. Their scheme logically led to the idea that all the actual operations of the mind--reason included--must depend on bodily organs, in the sense that they were limited by the body. Instead of the Cartesian version of dualism which said that there should be some purely mental operations in us, there appeared the new dualistic scheme which said that all our actual mental faculties were dependent on the body. Every mental operation, whether rational or not, must be interactive and exercised through the body. Cheyne wrote that 'the perfection ... of the intellectual faculties' depended on the 'soundness and health of the bodily machin,' i,e, 'proper organs, springs, ropes, and pipes': Robinson wrote that mental capability did 'depend upon the power of its faculties, whose exercise are the more conspicuous, the more the finest fibres of the brain, in which they lie enveloped.'[70]

The scheme was not Cartesian in that it denied the Cartesian bodiless cogito. Neither was it Lockean. Indeed, it was overtly anti-Lockean at the most fundamental level. Its framework of understanding the mind was constructed by the immaterial substance with its original powers that can't be detected in this world, and by the bodily determinants (or, impediments) of them. The discourse had two poles of metaphysical pneumatology and bodily physiology, neither of which were Locke's major concern in his Essay. Indeed, Locke explicitly shunned 'physical consideration' of the soul and examined the actual operations of the soul in living human beings, rather than its undetectable original powers.

Cheyne and Robinson expressed dissatisfaction at this essential tactics of Locke's Essay. Cheyne wrote about Locke as follows:

> Locke considered man, and his faculties, not indeed in their already reprobated and hellish estate, but as he really now is, in the world,

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70. Cheyne, An Essay on Regimen, pp.161 & 166; Robinson, A New System of the Spleen, p.31.

> a composition of moral and natural good and evil: and this state he has very farely and justly represented as far as it goes. But then, either having no notion, or at least no regard, to his higher faculties, which in natural and lapsed man, lye buried under the rubbish of his present corruption and sensuality.[71]

For Cheyne, Locke implied that the actual mental operations were the only things about the soul/mind that matters because he over-concentrated on the this-worldly aspects of the human mind. A similar charge against Locke is found also in Robinson. Confuting the Lockean argument about personal identity, Robinson criticized Locke for confusing 'person, a real subsisting principle,' and 'consciousness, only an affection of that principle, depending on the regular exercise of the corporeal organs.'[72] Locke failed to distinguish, Robinson argued, 'the action of intelligent beings from their spiritual essence.'[73] Here again, Locke is accused for not paying proper attention to something spiritual that underlay our actual mental operations.

A tentative assessment of the background of the criticisms of Locke and the proposals of more metaphysical schemes seems to be possible. The soul in early-century anti-materialists' polemic was a single substance endowed with the original power which is the cause of all mental faculties, rather than a bundle of hierarchically structured multiple faculties. It seems that the characterization of the soul as an single metaphysical entity had some connection with the dispute on personal identity, another widely discussed Lockean problem.[74] Since Locke's suggestion that personal

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71. Cheyne, Philosophical Principles of Religion, pp.114-15.

72. Robinson, A New System of the Spleen, pp.36-8. A similar criticism was raised by Joseph Butler. See Butler, Works, vol.1, pp.387-396.

73. Robinson, A New System of the Spleen, p.40.

74. See Sylvana Tomaselli, 'The First Person: Descartes, Locke and Mind-Body Dualism,' Hist.Sci., 1984, 22: 185-205; Tennant, 'The Anglican

identity must consist not in the unity of substance but in consciousness and memory was often criticized at that time, it seems reasonable to suppose a link between the refutation of the thinking matter hypothesis and the attempt to produce an alternative to Locke's consciousness-based theory of personal identity. Indeed, Nicholas Robinson tried to combat the thinking matter hypothesis and Locke's theory of identity with the same device of the soul as a metaphysical substance, as I have shown above. It seems that behind the scene was lurking the religious, and sometimes even mystical, counter-attack against the threat to Christianity posed by Locke: George Berkeley (1685-1753), Joseph Butler (1692-1752), Scriblerians, etc.[75] However, I would like to emphasize again that this supposed link is a very tentative one.

Here is a paradox of the Enlightenment. On one hand, Cheyne and Robinson could be properly described as the physicians of the Enlightenment who promoted the bodily interpretation of mental phenomena, as I have examined in the previous chapter, for they attributed all mental changes (mental diseases included) to the changes in the body. On the other hand, they embraced the deeply anti-Lockean, spiritual, other-worldly, and almost mystical formulation of the soul. The hypothetical and metaphysical characterization of the immaterial substance buttressed the medical reduction of the mental phenomena to the bodily ones. Dual and seemingly diametrically opposite directions were thus involved in the medical writings on the mind/soul and its disorders in the earlier half of the eighteenth century.

Around the mid-century, a different scheme from Cheyne's and Robinson's appeared in the project of David Hartley. Hartley's scheme was not diametrically opposite to Cheyne's. Indeed, one is tempted to say that early-century formulation of the new pattern of dualism made Hartley

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Response to Locke's Theory of Personal Identity'; Fox, 'Locke and Scriblerians.'

75. Tennant, 'The Anglican Response to Locke's Theory of Personal Identity,'; Fox, 'Locke and the Scriblerians.'

possible, by demolishing the former rigid distinction between material and immaterial faculties and by claiming all our mental activities are accompanied by bodily changes. Hartley's scheme seems to have come not out of Lockean materialism, but from the new pattern of dualism worked out in the attempt to refute the materialism. Hartley, however, constructed a different field to understand the soul, its operations, and its union with the body. In the next section I will examine those problems in Hartley's grand project.

David Hartley's Observations (1749): Physiology of Thinking

a) Locke's associationism in the early eighteenth century

David Hartley published his Observations in 1749. As he wrote in the preface to the work, and as is confirmed by Webb's detailed study of the growth of Hartley's thought, this work was a product of long thinking of eighteen years during which his thought followed a twisted way, with at least one 'trial balloon' publication, and, possibly, another two.[76] During the course, Hartley digested the two fundamental inspirations from the two giants of the English Enlightenment--Newton's conjecture on the vibration of aether as an instrument of our senses and motions and Locke's brief

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76. David Hartley, Observations on Man: His Frame, His Duty, and His Expectations 2 pts. (London: Leake & Frederick, 1749). The 'trial balloon' work is Various Conjectures on the Perception, Motion and Generation of Ideas, originally published in 1746 in his De Lithontriptico... Joanna Stephens, trans. by Robert E.A. Palmer, intro. by Martin Kallich (Los Angels: University of California Press, 1959). Stephen Ferg, 'Two Early Works by David Hartley,' Jour.Hist.Phil., 1981, **19**: 173-89, has convincingly attributed two anonymous works to Hartley, i.e., An Introduction towards an Essay on the Origin of the Passions... (1741) and An Enquiry into the Origin of the Human Appetites and Affections... (1747). However, Martha Ellen Webb, 'A New History of Hartley's Observations on Man,' Jour.Hist.Behav.Sci., 1988, **24**: 202-11, the most detailed work on the making of Hartley's Observations, did not suggest any evidence of Hartley's publishing the two works, and, curiously, did not mention Ferg's paper.

statement on the association of ideas.[77] Newton's tentative suggestion of the elastic fluid attracted a great number of natural philosophers then, with plenty of historical studies on acceptance of Newton's suggestion.[78] And Newton's theory of vibrating subtle fluid played, as C.U.M. Smith pointed out, much greater role in Hartley's work than as a mere initial inspirational kick: each vital component of Hartley's argument on vibratory aether fits well with Newton's theory of matter.[79]

The other fundamental device to create Hartley's system, Locke's association of ideas, did not find as large a number of followers as Newton's aether until late eighteenth and early nineteenth century, and relatively few historical studies have been made on the subject in the earlier half of the century.[80] Hence a short summary of the history of the reception and transformation of Locke's associationism will be helpful.

The seminal suggestion was made in Locke's addition of a brief chapter to the fourth edition (1700) of his Essay.[81] In the chapter

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77. Hartley, Conjectures, p.1; idem, Observations, 'Preface.' See also [David Hartley], An Enquiry into the Origins of the Human Appetites and Affections... (Lincoln: for R. Dodsley, 1747), pp.32-35.

78. See, among others, Robert Schofield, Mechanism and Materialism: British Natural Philosophy in an Age of Reason (Princeton: Princeton U.P., 1970).

79. C.U.M. Smith, 'David Hartley's Newtonian Neuropsychology,' Jour.Hist.Behav.Sci., 1987, 23: 123-36.

80. The fullest account of Hartley's associationism is Barbara Bowen Oberg, 'David Hartley and the Association of Ideas,' Jour.Hist.Ideas, 1976, 37: 441-54. See also H.C. Warren, A History of the Association Psychology (London: Constable and Company, 1921); Robert Young, 'Association of Ideas' in DHI; Corinna Delkeskamp, 'Medicine, Science, and Moral Philosophy: David Hartley's Attempts at Reconciliation,' The Journal of Medicine and Philosophy, 1977, 2: 162-76.

81. Locke, Essay, 2.33. John Wright has convincingly established that Malebranche is an important source of Locke's idea of association. See John Wright, 'Association, Madness, and the Measures of Probability in Locke and Hume,' in Psychology and Literature in the Eighteenth Century, ed. by Fox, 103-27.

entitled 'of the association of ideas,' Locke described the ill effects of our making false and unnatural association between ideas, whose connection was established 'wholly owing to chance and custom.'[82] Locke observed that self-love, wrong education, custom, and prejudice, were the chief causes of man's extravagant opinions and his obstinate sticking to false notions. This is because, Locke suggested, several ideas, which do not have a 'natural correspondence and connexion one with another,' are united in the person's mind and cemented so tightly that 'it is very hard to separate them, they always keep in company, and the one no sooner at any time comes into the understanding but its associate appears with it.'[83] Locke gave an example of the association of the idea of goblins and that of darkness. There exists no natural connection between them, yet as a foolish maid often inculcates these two ideas on the mind when one is a child, these two ideas become tightly united and he will have an idea of goblin whenever it is dark, even after he is grown up.[84] One cannot be free from it and the false association will last 'so long as he lives,' for 'when this combination is settled, ... it is not in the power of reason to help us, and relieve us from the effects of it.'[85]

Apparently, association of ideas is, for Locke, the model of an error, superstition, or abnormal and undesirable working of the mind. It constitutes a vital part of one of the two main tasks of Locke's Essay, i.e. to analyse the causes and mechanisms of aberrant thinking and to establish a normative epistemology.[86] Accordingly, Locke went so far as to say

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82. Locke, Essay, 2.33.5.

83. Locke, Essay, 2.33.5.

84. Locke, Essay, 2.33.10.

85. Locke, Essays, 2.33.13.

86. See John P. Wright, 'Association, Madness and the Measures of Probability.'

that association of ideas is a sort of madness, as 'opposition to reason deserves that name, and is really madness.'[87]

The suggestion found few serious medical followers in the first half of the century. The only and seemingly insignificant exception I have found is John Hollings' (1683?-1739) Harveian Oration in 1734, which was no more than a passing remark. Hollings simply addressed his audience to pay attention to Locke's association of ideas, writing that Locke's 'connection of ideas' ought not to be neglected, for the knowledge of it would be helpful for the right understanding of 'several diseases of the head, such as delirious disorders, lethargies, madness and the like.'[88] Despite Locke's strong tone of identifying madness with association of ideas, physicians then did not follow his lead, and Hollings seems to have failed to stir medical interest in Locke's associationism.

For some philosophers in 1730s and 1740s, association of ideas meant much more. Picking up Locke's suggestion, they made a more general and ambitious use of it and transformed Locke's cause of mere aberrant thinking into a principle that can form normal and normative workings of mind. John Gay (1699-1745) used association as the vital moulder of the basis of morality of man in his 'Preliminary Dissertation concerning the Fundamental Principle of Virtue or Morality' (1732).[89] Dissatisfied with Francis Hutcheson's (1694-1746) 'innate disposition' toward benevolent behaviour and inherent 'moral sense,' Gay argued that

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87. Locke, Essay, 2.33.4.

88. John Hollings, The State of Human Nature (London: T. Roberts et al., 1734), p.10.

89. Rev. John Gay, 'Preliminary Dissertation concerning the Fundamental Principle of Virtue or Morality,' in William King, An Essay on the Origin of Evil, translated by Edmund Law, 2 vols. (London: W. Thurlbourn, 1732), xxviii-lvii. Gay's 'Dissertation' is reprinted with an useful introduction in L.A. Selby-Bigge, British Moralists, 2 vols. (Oxford: Clarendon Press, 1897), vol.2, pp.267-285.

moral sense and benevolent passions were not 'implanted,' but acquired and moulded by the association of ideas through habits.[90]

Another similar application of the principle of association was made by David Hume (1711-1776) in his A Treatise of Human Nature (1739) and Enquiries concerning the Human Understanding and concerning the Principles of Morals (1748).[91] Hume showed that our processes of judgment, especially the judgment of cause and effect, were dependent upon association of ideas, i.e. our repeated experiences of a certain event and customs and habits. For Hume, our normative mental operations such as reasoning and moral judgment, as well as abnormal thinking, were all products of association. Association is, for Hume, the key to his whole system of the philosophy of the human mind.

Roughly speaking, therefore, Locke's associationism appealed much more to philosophers than to physicians in the early eighteenth century. In the domains of moral philosophy and logic, there were important attempts to use association as a fundamental principle, while physicians did not show much interest in Locke's suggestion.

b) Hartley's physiological associationism

As a writer who was principally interested in moral philosophy, Hartley took up the widened version of association as the principle of all human mental activities such as memory, imagination, use of language, understanding, affection and will. Indeed, Hartley admitted debt to

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90. Gay, 'Dissertation,' xxxii. [David Hartley], An Enquiry, pp.3-16, too, made use of the principle of association to refute Hutcheson's innate moral sense.

91. For Hume's use of association, see John Bricke, 'Hume's Associationist Psychology,' Jour.Hist.Behav.Sci., 1974, 10: 397-409; John P. Wright, 'Association, Madness and the Measures of Probability.'

Gay.[92] What marked him as different from Locke, Gay and Hume, is that he gave an elaborate physiological basis to the process with which association moulds our various mental activities.

Hartley claimed that the white medullary substance of the brain, spinal marrow, and the nerves was the immediate instrument of sensation. When an external object hits a certain sensory organ, the sensation of it makes minute particles in the medullary substance vibrate, and the vibration causes in the mind the idea of the external object. When the impression of the object is removed, the vibratory motion will remain for a while.[93] And if the impressions are repeated enough times, the 'vestige, type, image' of the original vibration will be firmly established in the medullary substance. This process of making vestiges of vibrations starts as soon as one is born. The foetus has original vibration "N", and it gets the vibration "A", caused by an impression of an external object:

> Now let us suppose the first object to be impressed for the first time and then removed. It is evident from the nature of vibratory motions that the brain will not immediately return to state N, but will remain for some time in state A, though decreasing in intensity. Suppose the same object to be impressed again and again, and at last the brain will not return to the state N at all but remain in state A.[94]

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92. Hartley, Observations, 'Preface.' As for the possibility of Hartley's reading Hume, Warren answered in the negative, Oberg suggested Hartley might read Hume. Neither of them produced conclusive evidence. See Warren, History of Association Psychology, p.50; Oberg, 'David Hartley and the Association of Ideas,' 441. That Hartley was principally interested in moral, rather than natural, philosophy has been established by Webb, 'A New History of Observations.'

93. Hartley, Conjectures, p.23; idem, Observations, part I, pp.11-12.

94. Hartley, Conjectures, p.24: idem, Observations, part I, p.61. [Hartley], Enquiry, p.33, presents the identical model.

Thus, the brain of a new-born baby (the physical analogue of Locke's tabula rasa) starts to be moulded by receiving vibratory motions from the sensation of an external object, and, accordingly, its mind is furnished with an idea of it. Then Hartley proceeds to explain associations of several ideas. When three vibratory states caused by external objects (A, B, C) are repeated often enough, i.e. when the mind has three corresponding ideas (a, b, c) sufficient number of times, the vibration of A alone will cause the vibrations of B and C, that is, only having the idea "a" will cause the ideas of "b" and "c."[95]

As is evident from the brief summary of Hartley's basic starting point given above, Hartley's fundamental device in his building a physiology of thinking was one-to-one correspondence between one vibration and one idea, the basic physical unit and the primary mental unit: one simple vibration corresponds to one simple idea, and one compounded vibration corresponds to one compounded idea.[96]

Hartley constructed the new scheme by building a bridge over two disciplines of medical physiology and philosophy of the human mind. Although medical writers such as Cheyne and Robinson had competent knowledge of Newton's hypothesis, they did not take the 'idea' as the most basic unit for understanding the human mind, neither did they correlate it with the physical process of the vibration. Rather, their fundamental units were mental faculties like perception, memory, understanding, etc., and they correlated them with the structure of the fibres, as I have examined above.[97] On the other hand, philosophical writers who analyzed the

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95. Hartley, Conjectures, p.26; idem, Observations, part I, pp.62-63.

96. This was pointed out in Joseph Priestley, 'Introductory Essays', in Hartley's Theory of the Human Mind, on the Principle of the Association of Ideas (London: J. Johnson, 1775), pp.xii-xiv.

97. Robinson, A New System of the Spleen, pp.42-51. As for Newtonian physiology of Cheyne and Robinson, see Anita Guerrini, 'Isaac Newton, George Cheyne and the Principia Medicinae,' in The Medical Revolution of the Seventeenth Century, eds. by Roger French and Andrew Wear (Cambridge: Cambridge U.P., 1989), 222-45.

mental faculties into the mental atoms of ideas did not express explicit interest in the physiological side of the process, perhaps following Locke in avoiding the 'physical considerations.' Isaac Watts (1674-1748), in his Locke-inspired Logic, or the Right Use of Reason (1725), wrote that the study of the mechanism of sensation must 'belong to another science rather than logick': Hume regarded the examination of sensations as the suitable task for anatomists and natural philosophers, rather than that for a student of the human mind: Gay's associationism was not concerned with the physical realm of man at all.[98]

There was, therefore, a gap between two groups of discourses in England in the early eighteenth century. One that was concerned with the understanding of the physical part did not analyse the mental operations into its basic units of ideas, and the other that tried to analyse various workings of the mind into associated, connected, composed ideas lacked physiological basis. Anatomy of the body and analysis of the mind belonged to different domains. Hartley's work represented one of the most significant eighteenth-century attempts to link them together. He Lockeanized the physiology of thinking pursued by the physicians, and physiologized the Lockean associationism embraced by the philosophers.[99]

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98. Isaac Watts, The Works of the Late Reverend and Learned Isaac Watts, D.D. 6 vols. (London: T. and T. Longman, et al., 1753), vol.5., p.5; David Hume, A Treatise of Human Nature, ed. by P.H. Nidditch (Oxford: Clarendon Press, 1978), p.8.

99. The bridge between associationism and the physiology of sensation was not available to Hartley when he started to be interested in association through Gay's work, and it took about eight years for Hartley to hit upon the idea. See Webb, 'A New History of Observations.' And the expansion of Hartley's interest into the corporeal domain was probably due to his practice of medicine during this period, reading a lot of medical works, publishing some medical pamphlets (on inoculation and 'Mrs. Stephens' powder'), and getting acquainted with some members of the scientific establishments in London to which he moved in 1735. See Martha Ellen Webb, 'The Early Medical Studies and Practice of Dr. David Hartley,' Bull.Hist.Med., 1989, **63**: 618-36.

Accordingly, Hartley's new genre of the study of man represented two major departures from former 'anthropology.'[100] First, the mental part of Hartley's works was not the same as the former 'psychologie' in 'anthropologie,' neither was it the same as what Cheyne and Robinson talked about. They examined the nature of the soul, asked whether it was substance or not, whether it was immaterial or not, how it was connected to the body. To use Locke's term, they were engaged in 'physical consideration' of the soul. Hartley, on the other hand, did not raise such issues. Instead, he connected his physiological explanation with the description of actual operations of the mind. The 'mental' part of his work examined the question how human mind worked when it remembers, imagines, uses language, makes judgment on ethical issues, and feels sympathy, theopathy, and benevolence. These issues, in contrast with the former 'physical considerations,' belonged to Locke's domain.

Secondly, he did not separate his account of the corporeal aspects of man from mental ones. The corporeal and mental accounts of man constituted different and highly independent parts in the former schemes of 'anthropologie.'[101] Hartley interwove the two domains. The accounts of the corporeal and mental aspects did not appear in different parts, but were presented in turn in a single chapter, in which Hartley alternated between the mental and corporeal. He explained how an association of ideas takes place in our mind; then proceeded to support the argument by giving an account of how the corresponding vibrations would coalesce into one; went back to mental domain to explain how complex ideas are formed: and proceeded to physical domain to talk about how 'the simple miniature vibrations corresponding to those simple ideas run into a

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100. For the subject called 'anthropology' in the seventeenth and eighteenth centuries, see Fox, 'Defining Eighteenth-Century Psychology.'

101. See Anthropologie Abstracted: or the Idea of Humane Nature (London: Henry Herrington, 1655).

complex miniature vibration, corresponding to the resulting complex idea.'[102] The two parts of the former 'anthropologie' were fused by Hartley into one field of knowledge: there had been separate 'somatology' and 'psychology,' while Hartley created so to speak 'somatological psychology.'

In the Hartleian scheme, therefore, we see a fundamentally different device for understanding the human mind. The gap between the study of the working of the mind and that of its physiology was bridged; a close one-to-one relationship between mental and physical unit was established; rather than the old faculty-based pneumatology, the latest Lockean psychology was adopted and combined with the physiology of nerves. Then, what did he think about madness? Hartley devoted one whole chapter to an examination on 'deviations from sound reason, and alienation of mind,' so as to gather support to the theory of vibration and association.[103] At the beginning of the chapter, Hartley characterized madness as follows:

> Mad persons differ from others in that they judge wrong of past or future facts of a common nature; that their affections and actions are violent and different from, or even opposite to, those of others upon the like occasions, and such as are contrary to their true happiness.[104]

Instead of Cartesian model of madness as an illusion and iatro-mathematical model of madness as a disordered reflex action, Hartley adopted Locke's suggestion of madness as mis-association, i.e., wrong judgment and aberrant behaviour.

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102. Hartley, Observations, part I, pp.65-67 and 73-79.

103. Hartley, Observations, part I, pp.390-403.

104. Hartley, Observations, part I, p.390.

Hartley tried to underpin this Lockean characterization of mental disorders by his physiology centred on the theory of vibration of nerves. Idiocy was related with disorders in the brain which prevented a man from receiving 'a disposition to the miniature vibrations in which ideas consist'; dotage of the old age was supposed to be caused by the decay of 'the part of the brain in which the miniature vibrations ... have taken place'; a wrong judgment takes place when '[the nervous disorder] increases the vibrations belonging to its ideas so much, as to give it a reality.'[105] These physiological explanations centred on the nerves were hardly Hartley's original. As we have already seen, the nerves and the brain as the instrument of mental operations had long been established, especially in the writings of Cheyne and Robinson. Neither his characterization of mental and behavioral aspects of madness was unique: Hartley owed a lot to Locke's characterization of madness as deviation from common sense. What seems original was, again, that he brought together two different genres of discourse and tried to unify them into a single discourse. Those who had written about madness from the mental point of view did not use the language of physiology, and those who talked about the disordered body largely stuck to the Cartesian illusion model of madness. Hartley fused the two categories of discourse together: just as Hartley threw a bridge between Lockean philosophy of the human mind and medical physiology to pioneer the new field, his account of madness was both Lockean and physiological.

Hartley seems to have failed to attract physicians' immediate notice, however. Although Hartley wrote that his theory of association and vibration would contribute to more correct understanding of madness, in the immediate wake of the publication of the book, he found few, if any, medical followers. As Robert Hoeldtke has argued, it was not until William Cullen (1710-90) and his pupil Thomas Arnold that association

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105. Hartley, Observations, part I, pp.391-401.

was considered seriously as an important mechanism in madness.[106] And as I will argue in the sixth chapter, there was to be a full development of Hartley's seminal suggestion.

c) Other similar schemes

Although Hartley was unique in his fusing associationist psychology and Newtonian physiology of sensation, there were some similar projects on the French-speaking Continent and in England around the time of the publication of Observations.

Contributors from the French scene included Charles Bonnet (1720-93), a Swiss naturalist and philosopher, and Antoine le Camus (1722-72).[107] The scheme presented in Bonnet's Essai de psychologie (1754) and Essai analytique sur les facultés de l'âme (1760) is strikingly similar to Hartley's Observations.[108] Like Hartley, Bonnet proceeds step by step from the mind/brain of a foetus to that of a thinking man, underpinning each step by physiological explanation. Bonnet's foetus has no idea (tabula rasa), its nervous and cerebral fibres are in the état primitif ou original (Hartley's 'original vibration'); sensation changes the original state to a new disposition (Hartley's 'vestige'); by association of simple

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106. Robert Hoeldtke, 'The History of Associationism and British Psychology,' Med.Hist., 1967, 11: 46-65.

107. John Yolton, Locke and French Materialism (Oxford: Clarendon Press, 1991).

108. [Charles Bonnet], Essai de psychologie; ou considérations sur les opérations de l'âme, sur l'habitude et sur l'éducation (London: no publisher, 1755); idem, Essai analytique sur les facultés de l'âme (Copenhagen: Cl. & Ant. Philibert, 1760). For the development of Bonnet's psychological idea, see Lorin Anderson, Charles Bonnet and the Order of the Known (Dordrecht: Reidel, 1982), pp.16-18. The anonymous author of Letters on Materialism and Hartley's theory of the Human Mind, Addressed to Dr. Priestley (London: G. Robinson et al., 1776), associated Bonnet and Hartley, writing both claimed 'that every mental process is a mechanical effect, and therefore that all free election in man is a chimerical and usurped prerogative.' (p.11)

sensations man is endowed with the faculties of judgment, reasoning, and moral senses.[109] Just as Hartley relied on Locke's Essay, Bonnet followed Condillac's (1715-80) Traité des sensations (1754), which was inspired directly by Locke's Essay. Bonnet even used Condillac's famous model of human statue gradually acquiring mental faculties through sensations. Bonnet's Essai analytique was thus a fusion of Condillac's (and, ultimately, Locke's) psychology and medical physiology of nerves, and, and the book looked very much the same with Hartley's Observations.

Antoine Le Camus's Médecine de l'esprit (1753) represented another attempt to underpin Lockean psychology with the physiology of nerves.[110] In the work, the account oscillated between mental and physical domains in the way of Hartley and Bonnet. Each piece of explanation of a mental faculty is followed by physiological underpinning of it, using the device of the one-to-one correspondence between an idea as the mental atom and 'une reflux des esprits' as the corresponding physiological unit. In doing so, he knew exactly what he was doing: to introduce physiological basis into the discipline of logic. He declared that in that book he would discuss 'the mechanism which contributes to the operations of our mind,' and suggested that 'this part of knowledge can be called the logic of physicians [my emphasis].'[111]

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109. Bonnet, Essai analytique, pp.13, 32-33, 40, & 48-9.

110. Antoine le Camus, Médecine de l'esprit, 2 vols. (Paris: Ganeau, 1753). For le Camus, see John W. Yolton, 'French Materialist Disciples of Locke,' Jour.Hist.Phil., 1987, 25: 83-104; idem, Locke and French Materialism, passim.

111. Le Camus, Médecine de l'esprit, vol.1, p.9. Compare his notion of the environment making up the mind with Claude-Adrien Helvétius, De l'esprit: or, Essays on the Mind, and Its Several Faculties (1810; New York: Burt Franklin, 1970). For discussion of idéologues and medicine in late eighteenth-century France, see Martin S. Staum, Cabanis: Enlightenment and Medical Philosophy in the French Revolution, (Princeton: Princeton U.P., 1980); idem, 'Medical Components in Cabanis's Science of Man', Studies in History of Biology, 1978, 2: 1-31.

Unlike their French colleagues, English medical writers do not seem to have immediately produced any Hartleian version of physiological psychology. Neither was Hartley a star in the domain of English metaphysics: Priestley's abridged edition was the product of his disappointment with people's ignorance of Hartley.[112] Some metaphysical writers, however, were interested in what may be called physiology of thinking. J. Richardson, an obscure writer in Kent, might be one of the earliest writers that launched a Hartley-like project after the publication of Observations. In his Thoughts upon Thinking (1755), he expressed disappointment at the works by 'Bacon, Descartes, Fenelon, Browne, Locke, Clarke, Watts, Wollaston, Berkeley, Cheyne, Baxter, Leibnitz and others' and he claimed that his book attempts to explain human mind 'upon principles entirely new.'[113] His 'new principle' was to reduce human mental operations understood in Locke's framework into physical analogue of sensation:

> Thinking may not unaptly be defined a mimicking, or acting over again, every kind of sensation, performed by the same organs, but the impulse being different, and exerted in a different manner, for that exhibited by real object.[114]

For Richardson, to remember, to imagine, to will, or to think, was to have the inward mechanism of our sense organs modified 'as if I was actually

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112. See Michael Barfoot, 'Priestley, Reid's Circle and the Third Organon of Human Reasoning,' in Science, Medicine and Dissent: Joseph Priestley, eds. by R.G.W. Anderson and Christopher Lawrence (London: Wellcome Trust/Science Museum, 1987), 81-89; Richard H. Popkin, 'Joseph Priestley's Criticisms of David Hume's Philosophy,' Jour.Hist.Ideas, 1977, 15: 437-47.

113. J. Richardson, Thoughts upon Thinking, or a New Theory of the Human Mind (London: for the Author, 1755), p.5. Almost nothing is known about the author.

114. Richardson, Thoughts upon Thinking, p.6.

perceiving.' Thinking became a simulacrum of sensation that had apparent physiological basis.[115]

Robert Applegarth, another obscure writer, published 'A psychological stricture' affixed to his Theological Survey of the Human Understanding, to promote the fusion of psychological and physiological languages.[116] Here again at issue was the discipline of logic. Unlike Lockean, Humean, and many others' logic which tried to look at the idea as a mental unit, Applegarth's reformed logic constructed its basic unit as a fundamentally dual component of both mental and bodily phenomena:

> In fine every idea (both sensation and reflection) may be considered as composed of two parts: viz. 1) a pulsation of some one nerve of the brain and 2) the impression made by that on the percipient [mind]. And these two together (but neither alone) is what I call thinking.[117]

Applegarth's scheme seems to have followed Hartley in trying to regard human thinking as the inseparable compound of the bodily and mental process.[118] Accordingly, in Applegarth's newly formulated 'psychology,' the discourse on the body occupied a solid place. He wrote about: the function of the brain to secrete the animal spirits; mental habit established by 'the pulsatory habit of the interior nerves in the brain' (almost certainly

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115. Richardson, Thoughts upon Thinking, pp.12-15.

116. Robert Applegarth, A Theological Survey of the Human Understanding Intended as an Antidote against Modern Deism (Salisbury: for the Author, 1776), 'A Psychological Stricture', pp.245-76. Almost nothing is known about the author.

117. Applegarth, A Theological Survey, p.258.

118. He admitted Locke's 'physical consideration' of the soul into the basic division of topics in logic. Applegarth, A Theological Survey, pp.247-48. The traditional division of the topics in logic into four parts of perception, judging, reasoning, discourse had been accepted since the Port-Royalists. See Howell, Eighteenth-Century British Logic and Rhetoric, pp.307.

the influence of Hartley's vibration theory); lunacy caused by forcible shock on nerves. All these topics hardly existed in works of logic in the early eighteenth century, for they were Locke's 'physical considerations,' and Hume's 'task of anatomists.'[119]

The evidence given above from the 'minor' writers shows that Hartley was not the only person to try to fuse Locke's psychology and nervous physiology. Although Richardson and Applegarth did not use associationism, they were doing essentially what Hartley did, i.e., to provide a somatic basis to Lockean philosophy of the mind. Moreover, they regarded their projects as something new and reformative of the status quo of the philosophy of the mind. Therefore, around the mid-century, there appeared a drive to defy the traditional Lockean barrier between philosophy of the mind and the 'physical considerations of the mind,' and to create a new form of discourse which can be called physiological Lockean psychology.

There were two coups which involved re-structuring of psychiatry/psychology in the earlier half of the century. One was expressed in the physicians' and metaphysicians' polemic against the materialists' threat. There the intactness of the immaterial faculty in our actual mental operations was replaced by the intactness of the original and primary powers of the soul, and all our actual mental operations became a product of interaction. The other saw its fullest and the most elaborate development in Hartley. It was essentially an attempt to bridge the gap between the enquiry in the operations of the human mind in Lockean way and the study of the physiological processes of thinking. Locke's rather tight distinction between logic/moral philosophy and the 'physical consideration of the soul' was defied, and the study of the mind and its diseases came to have both the languages of Lockean philosophy and of physiology.

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119. Applegarth, A Theological Survey, pp.251, 256 and 262.

One thing to be pointed out is that none of the above mentioned projects of fusing discourse on mental operation and that on physical corresponding process was a militant monistic polemic such as those of La Mettrie and Priestley. Hartley, Bonnet, Le Camus, Richardson and Applegarth were all explicit in claiming that there were two substances in man, i.e. thinking immaterial substance and the material one, and there is no sign that any one of them intended to launch an attack against dualism. Applegarth's work bears a subtitle of 'an antidote against modern deism,' and Richardson was ready to admit the immateriality and divinity of the soul.[120] Neither did readers of their works recognize a threat of materialism. Reading Bonnet's Essai analytique, Jerome Gaub (1705-1780) wrote to Bonnet that the work demonstrated the immateriality of the soul the most successfully and provided a bastion against La Mettrie's heresy.[121]

In that sense, the works of Hartley and others had continuity with the works by Baxter, Cheyne, and Robinson. Both groups of writers were loyal to the doctrine of the immateriality of the soul and man as consisting of two substances. Both groups, at the same time, insisted that all mental operations of man were dependent upon the body. Both Hartley and Cheyne claimed that the human mind was improved via working upon the body it resided. Hartley's work was not directed against those of Cheyne and others, despite the former embracing Locke and the latter rejected him.

Hartley, however, started a new approach within the old dualistic framework. Besides his establishing one-to-one correspondence between the most fundamental mental and physical units, and besides his blurring Locke's distinction of the three categories of knowledge, I would like to point out three major shifts in Hartley's and other similar projects. First, the radical departing point in Hartley's Observations from the discourse

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120. Richardson, Thoughts upon Thinking, p.43.

121. Anderson, Charles Bonnet, p.19.

by Cheyne, Robinson, and others was that the area of materially determined mental faculties acquired autonomy. The former discourse on the physiology of the mind was inseparable from the discourse on immaterial, other-worldly, transcendental soul: there the discourse on the physiology of actual mental operations was buttressed by the discourse on the powers of the soul after its separation from the body. In that configuration of the scheme, bodily determined actual mental phenomena were the indirect, imperfect, and inferior manifestation of original powers of the soul, which was essentially something unknown.

In Hartley's scheme, by contrast, there is no room for the other-worldly soul to play as decisive a role as it did in Cheyne's. The actual mental operations of man were not measured against the superior ones after the death of the body. Hartley and Bonnet's human mind, starting from its infancy with no ideas and no mental operations, gradually grows to its maturity with the full exercise of the powers of intellect, and aesthetic, moral and religious senses. Our mental powers are the stage that have progressed from its infancy, not a degenerated or inferior one of pre-lapsarian and/or post-separation powers of the soul: they are to be measured against the mind of a baby, or even of a foetus. As is evident, this is Locke's own scheme, i.e., human mind progressing from tabula rasa, which was criticized by Cheyne and Robinson (and many others) as eliminating the transcendental substance from man. Hartley achieved this in a different manner from Hume: unlike Hume who uprooted the idea of 'substance' and replaced the substance of self with 'a bundle of perceptions,' Hartley did not attack the doctrine of the substance itself: he simply did without it in the field of mind-body problems where Cheyne and others had found it indispensable.[122]

Secondly, related closely with the first point, the body in Hartley's scheme played a different role from that in the scheme of Baxter, Cheyne, Robinson and others. The body in the scheme of Cheyne and others was

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122. David Hume, A Treatise of Human Nature, pp.232-52.

essentially an impediment to the transcendental soul, however its refinement contributed to the improvement of the mind. With the withdrawal of the transcendental soul from the scene, Hartley's body plays only constructive role in developing our mental faculties. Without vibrating nerves, there would be no idea, hence no mental powers: without the body, our mind would stay in the identical state with that of a newborn baby.

Thirdly, sensation, or perception of an external object played a different part in the systems of Hartley and others. From the viewpoint of transcendental understanding of the mind, sensation did not form the most important part of human mind. For Baxter, sensation was still an instrument, which the soul was forced to rely on in its union with the body. The author of Two Dissertations concerning Sense, and the Imagination (1728), thought that the faculty of sensation, which man shares with animal, was 'only a ministerial faculty, or hath the nature ... of an instrument. Robinson still held the view that our mental faculties form 'a ladder,' which stretches between the supreme faculty of understanding and the lowest one of sensation.[123] For Hartley and others in the mid-century, in contrast, sensation gave a new physical dispositions to the nerves and brain, and constructed 'higher' mental operations. Moral senses, aesthetic taste, judgment, religious sentiment, and benevolent feeling were all moulded by sensations.

Doing without transcendental soul, the constructive role of the body, and placing sensation at the centre of the system--these are the elements of the new systems proposed around the mid-century. Although, as I have stressed, all these took place within the orthodox framework of dualism, it is understandable that this new scheme of understanding the

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123. Baxter, An Enquiry, vol.1, pp.263f. and 390; Two Dissertations concerning Sense, and the Imagination, with an Essay on Consciousness (London: J. Tonson, 1728), p.8. David G. Schappert writes that the attributed authorship of this work to Zachary Mayne or Charles Mayne is doubtful. See 'Selected Bibliography' in Christopher Fox ed., Psychology and Literature, 342; Robinson, A New System of the Spleen, pp.50-51.

mind led some to out-and-out monism--most notably, Priestley--and upset others. Reading Hartley, Priestley found that the doctrine of vibrations 'leaves nothing to the province of any other principle, except the single power of perception.' From that Priestley concluded that 'if it were possible that [man] could be endowed with this property, immateriality would be excluded altogether'.[124]

An anonymous author of Letters on Materialism and Hartley's Theory of the Human Mind, Addressed to Dr. Priestley made the same observation on Hartley's work but did not welcome it as Priestley did:

> Hartley's spiritual part might have no pretext to glory in its superiority, he invidiously despoiled it of all its high endowments, and [had] it servilely submite to all the mandate of the body. Thus the soul from being considered as a substance supremely active, and gifted with powers of reasoning and of ruling the motions of the body, is let down to the level of a being, divested of every real faculty, made passive and inert, and solely capable of receiving impressions.[125]

The anonymous author here pointed out the three phases of the Hartleian shift. The mind formulated by Hartley was, the author claimed, totally secular, submissive to the body, and only a receptor of sensation. Both Hartley's Observations and Bonnet's Essai analytique, the author protested, 'infer that every mental process is a mechanical effect.'[126] Abraham

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124. Priestley, Hartley's Theory of the Human Mind, xix.

125. Letters on Materialism, pp.142-43. See also William Hazlitt's 'Romantic' criticism that Hartley and Helvétius made the human mind the slave of selfishness, sensation, and habit. William Hazlitt, An Essay on the Principles of Human Action and Some Remarks on the System of Hartley and Helvétius (London: J. Johnson, 1805; a facsimile rept. with an introduction by John R. Nabholtz, Gainesville, Florida: Scholars' Facsimiles and Reprints, 1969).

126. Letters on Materialism, p.11.

Tucker (1705-74), who usually occupies the next place to Hartley in the chronology of associationism, attacked Hartley for having made the mind a passive receiver of impression.[127] Although Hartley's Observations did not come under massive attack until Priestley's monistic use of it, Hartley's new formulation of human mind turned out to be an offence against transcendental understanding of the soul.[128]

Did Hartley's discourse on human mind represent Enlightenment secularization? Yes and No. Yes, because Hartley may rightly be said to have followed Locke and to have done without the other-worldly soul in his physiology of human mind. No, because his practice of writing the physiology of thinking was almost inseparably connected with religious issues.[129] We have to recall that Hartley did not initially intend to write on physical consideration of the mind. That was a sort of by-product of his studying moral and religious bases of human happiness.[130] Moreover, his Observations contains Part II, in which he dealt with 'duty and expectations of mankind,' including revealed religion. Historians of psychology have not made serious study on Hartley's prescriptive morality and religion in the second part of the work, and this is not fair to Hartley's

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127. Abraham Tucker, The Light of Nature Pursued, cited in Warren, A History of Association Psychology, p.67.

128. The author of An Essay on the Immateriality and Immortality of the Soul (London: J. Dodsley, 1778) criticized Priestley's materialism but wrote that 'Dr. Hartley's theory ... stands free from the objections I have made to Dr. Priestley's, since Hartley allowed that we have immaterial principles.' (Ibid., p.79) Although Hartley' denial of 'philosophical freedom' was a common aim of attacks (see, for instance, Letters on Materialism, p.12), it seems that the attacks did not appear until Priestley's publication of the abridged edition.

129. See, for instance, Margaret Leslie, 'Mysticism Misunderstood: David Hartley and the Idea of Progress,' Jour.Hist.Ideas, 1972, 33: 625-32; Robert Marsh, 'The Second Part of Hartley's System,' Jour.Hist.Ideas, 1959, 20: 264-73.

130. Martha Webb, 'A New History of Hartley's Observations.'

own intention, as Robert March has clarified.[131] As Margaret Leslie, another revisionist on Hartley, has observes, we have been too accustomed to looking at Hartley through Priestley's abridged version of Observations, in which Priestley cut off 'a whole system of moral and religious knowledge.'[132] Marsh pointed out that for Hartley, the second part was the more important of the two, for religion was, for Hartley, the highest form of inquiry to which all the other 'branches of knowledge ought to be considered as mere preparatories and preliminaries,' and that Hartley expected study of human mind and its physiological basis would 'lessen ... difficulties attending natural and revealed religion, and to improve their evidences, as well as concur with them in their determination of man's duty and expectations.'[133] As Christopher Fox rightly says, 'many attempts in the age to understand the mind were not done for the purposes of psychology itself, but to gain some certainty in religious and ethical matters.'[134] These aspects of the Enlightenment physiological psychology seem to remain to be explored.

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131. Robert Marsh, 'The Second Part of Hartley's System.' See also Stephen Ford, 'Coalescence: David Hartley's "Great Apparatus,"' in Psychology and Literature in the Eighteenth Century, ed. by Fox, 199-223.

132. Priestley, Hartley's Theory of Human Mind, iii. Leslie, 'Mysticism Misunderstood,' 629.

133. Marsh, 'The Second Part,' 265 and 267. The citation is from Hartley, Observations, Part I, pp.366-7 and Part II, 'Introduction.'

134. Christopher Fox, 'Defining Eighteenth-Century Psychology,' 5.

Chapter Five

Battie-Monro Dispute Revisited

Introduction

a) Battie-Monro Dispute: its interpretations

The dispute between William Battie (1703-76) and John Monro (1715-91) took place in 1758. It was most probably the earliest exchange of medical publications over the subject of madness.[1] In 1758 a small book entitled A Treatise on Madness was published by Battie, then physician to St. Luke's Hospital for Lunaticks founded in 1751. In the book Battie made a barely veiled attack against Bethlem, criticizing, for example, its copious and indiscriminate blood-letting and its 'keeping the patients and cases to themselves.' John Monro, then physician to Bethlem succeeding his father James, immediately replied with Remarks on Dr. Battie's Treatise on Madness to defend Bethlem and his father, refuting Battie's argument paragraph by paragraph.[2]

The dispute has long been regarded as a breakthrough in the history of psychiatry, and it has been believed that the breakthrough resided in solely Battie's side. The institutional bases of the two controversialists have led medical historians to find there a picturesque confrontation between the old and the new, i.e., reactionary Monro representing the centuries-old ineffectual receptacle of the mad versus the progressive Battie as the spokesman of the freshly established hospital for

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1. William Battie, A Treatise on Madness (London: J. Whiston et al., 1758), rept. with John Monro, Remarks on Dr. Battie's Treatise on Madness (London: Clarke, 1758), intro. by Richard Hunter and Ida Macalpine (London: Dawsons, 1962).

2. Battie, Treatise, pp.3 & 94; Monro, Remarks, 'Advertisement' and pp.1-2. Tobias Smollett thought that Monro's Remarks was motivated by filial affection. See Critical Review, 1758, 5: 224.

the mentally ill.[3] The beatification of Battie and St. Luke's seems to have started in the mid-nineteenth century.[4] The great reformers of psychiatry at that time such as John Conolly (1794-1866), Daniel Tuke (1827-95), and Wilhelm Griesinger (1827-95) praised Battie and St.Luke's. They said: Battie's Treatise was the first book on mental diseases in England; he was the first in England to give clinical instruction on insanity and the first London physician to deliver lectures on mental diseases; St. Luke's was the first institution dedicated to the purpose of curing the insane and long the only example of active humane feeling for the insane.[5]

Although these ovations seem to have been due to the reformers' identification of themselves and their institutional bases with Battie and St. Luke's, there is some truth in them. Battie was the first English physician to a hospital for the insane who published a tract on madness, while physicians to Bedlam had never published any words on madness for two centuries until Monro's Remarks: Battie encouraged young physicians to visit St. Luke's and to make observations there, while Bethlem had not opened its doors to medical students until as late as 1843. Battie's

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3. The old image of pre-nineteenth-century Bethlem as an ineffectual, custodial, unscientific institution has been recently revised by a number of historians such as Roy Porter, Patricia Allderidge, and Jonathan Andrews. A modern scholarly and detailed study of St. Luke's is still wanting. See a rather old-fashioned C.N. French, The Story of St. Luke's Hospital (London: William Heineman Medical Books, 1951).

4. For nineteenth-century contrasting images of St. Luke's and Bedlam in the previous century, see, for example, Charles Dickens, 'A Curious Dance round a Curious Tree,' Household Words, 17 Jan. 1852. In the eighteenth century, however, it seems that there was little effort to contrast the two hospitals, and St. Luke's identified itself as complementary, rather than alternative, to Bethlem. See French, The Story of St. Luke's Hospital.

5. Heinrich Laehr, Die Literature der Psychiatrie, Neurologie und Psychologie von 1459-1799 (Berlin: Reimer, 1900): J. Clarke, A Memoir of John Conolly (1869): D.H. Tuke, History of the Insane in the British Isles (1882): Wilhelm Griesinger, Mental Pathology and Therapeutics (1867). All these works are cited in Hunter and Macalpine, 'William Battie, M.D., F.R.S.: Pioneer Psychiatrist,' The Practitioner, 1955, **174**: 208-15.

progressiveness is not entirely a myth of arbitrary creation.

Richard Hunter and Ida Macalpine have provided the hagiography of Battie with more solid historical scholarship. They have largely adopted the old framework, interpreted Battie as a progressive reformer and Monro as a traditionalist: 'How strikingly Battie's teaching marked a dividing line between the old and new approach to mental illness is shown by the wrath it aroused in John Monro, the physician of Bethlem Hospital, citadel of tradition.' According to Hunter and Macalpine, Battie started everything good and new. Battie's classification of madness into 'original' and 'consequential' represented the shift from 'madness as one uniform disease blindly and uniformly physicked' to the disease that needs 'observation and management of individual patient'; Battie's definition of madness as 'deluded imagination' opened the way to the psychological understanding of madness that flourished in the next century, while Monro's definition as 'vitiated judgment' supported the then widely-held view that madness needed correction by violent treatment and coercive measures, etc.[6]

This interpretation of the dispute, especially that of Battie's progressiveness, has been largely adopted by the more recent historians of psychiatry. Klaus Doerner looks at Battie from the viewpoint of sociology of knowledge and emphasizes that Battie made psychiatry a profession: Battie was the first to unite writing on insanity and holding an office at mental hospital, while no other physicians to mental hospitals published anything on madness and no other writers on madness held an office at psychiatric hospital. Doerner argued that Battie's theory of was an innovation. Battie's emphasis on delusive sensation was a manifestation of a radical departure from what Doerner dubbed 'the Lockean Enlightenment-absolutist model of the rational and coercive sequestration of the unreason,' and it opened up a new area of Romantic psychiatry with

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6. Hunter and Macalpine, 'Introduction' to Battie's Treatise and Monro's Remarks, pp.7-21; idem, Three Hundred Years of Psychiatry, pp.402-16; idem, 'William Battie.'

autonomous psychic space and psychological analysis. Professionalization of psychiatric knowledge, psychiatry with institutional basis and Romantic understanding of the mind: Doerner has found that Battie represented the trends to come.[7]

Roy Porter has taken a different view from Doerner and sees Battie in the light of the Enlightenment rather than Romanticism, which makes much more sense. Yet in general Porter agrees with the view that Battie anticipated some later innovative trends. Battie held, argues Porter, the optimistic view that madness was curable which was to dominate the English psychiatric scene in the early nineteenth century; Battie's emphasis on management of the insane was to be powerfully propagated during the age of psychological or 'moral' treatment. Taking a diametrically opposite viewpoint to Doerner's, Porter observes that Battie was influenced by Lockean philosophy and hence formed a link with later Lockean psychiatrists like Alexander Crichton (1763-1856).[8]

Besides Doerner and Porter, Dora Weiner has found that Battie was one of the forerunners of Pinel (1745-1826). Stanley Jackson has written that early nineteenth-century emphasis on moral management of the insane had Battie as its precursors. George Rousseau has made Battie represent the new scientific and lay views about madness in the mid-eighteenth century, and has painted Monro as a traditionalist.[9]

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7. Klaus Doerner, Madman and the Bourgeoisie (Oxford: Basil Blackwell, 1981), pp.39-46.

8. Roy Porter, Mind-forg'd Manacles (London: Athlone Press, 1987), pp.128-29, 192-93, and 206-8. Porter, however, quite rightly reminds us of the fact that Battie, like Monro, kept his own private madhouse, which almost certainly made him exceptionally rich. See ibid., p.131.

9. Dora Weiner, 'The Origins of Psychiatry: Pinel or the Zeitgeist?' in Zusammenhang Festschrift für Marielene Putscher, eds. by Otto Bauer and Otto Glandien (Köln: Wienand Verlag, 1984), 617-31; Stanley Jackson, 'Introduction' to William Pargeter, Observations on Maniacal Disorders (1792; rept. London: Routledge, 1988); George Rousseau, 'Science,' in The Eighteenth Century, ed. by Pat Rogers (London: Methuen, 1978), 153-207, esp., 182-86, see also idem, 'Psychology,' in The Ferment of Knowledge,

b) Problems: the intellectual context of the dispute

There seems to be a tacit assumption among the interpretations summarized above. By and large they approach Battie's Treatise with reference to what was to come after Battie, rather than what had happened before Battie and what was happening at his time. In other words, the historiography of Battie has been future-oriented: Doerner looks at Battie in the light of nineteenth-century institutional psychiatry and Romanticism; Porter tends to associate Battie with late eighteenth and early nineteenth-century English psychiatric writers; Weiner puts Battie in a framework for understanding Pinel, and Jackson compared Battie with Pargeter. Consequently, despite relatively rich studies on Battie, we do not have a good account of his own intellectual context, e.g. who influenced him, what kind of ideas he made use of, how much he owed to his contemporaries, to what extent he was different from them. One aim of this chapter is to correct the future-oriented unbalance of the present picture of Battie.

Another assumption is that Battie was a 'psychiatrist,' and that his book is best understood when put in the context of the history of psychiatry. A glance at his three other medical publications shows, however, that he was not a 'specialist' in psychiatric theory: one is a Harveian Oration on method in medicine, one concerned with physiology in general based on the Lumleian Lectures he gave in 1749-54, and the other is a book on general pathology expressed in the Boerhaavian style of aphorisms.[10] It is true that his contemporaries regarded him as

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eds. by G.S. Rousseau and Roy Porter (Cambridge: Cambridge U.P, 1980), 143-210.

10. William Battie, Oratio Anniversaria in Theatro Collegii Regalis Medicorum Londinensium anno 1746 (London,: J. Whiston, 1746); idem, De Principiis Animalibus Exersitationes in Collegio Reg. Medicorum Lond. Habitae (London: J. Whiston, et al., 1751); idem, Aphorismi de Cognoscendis & Curandis morbis (London: J. Whiston, et al., 1760). I could not examine the details of these writings, which would have been

specializing in treating the mad, and that one is able to describe Battie's Treatise as an early attempt to make medical study of madness an independent scientific discipline (as Doerner has suggested). But he did not pursue the end outside the general physiology and pathology at that time. Rather, just in the same manner to Willis, Pitcairn, Mead and many others, he started from the fundamental physiological idea he adopted and told a story on the causes of madness in accordance with his basic assumption. Battie's 'psychiatric' project was thus a product of the physiology which was then prevalent and which Battie was interested in. Especially, Battie held the office of Lumleian Lecturer of physiology from 1749-54 and was very well acquainted with contemporary physiological ideas, whose influence on Battie's Treatise is apparent. If one adheres to synchronic understanding of Battie rather than futuristic one, mid-century physiology seems to be more proper a framework to understand Battie than then barely existing specialist psychiatric knowledge.

Mid-century physiology was not the sole source of influence on the Battie-Monro dispute. Philosophy at that time was another important background of the dispute that has largely been neglected. Although Doerner and Porter looked at the philosophical background of the dispute to arrive at opposite opinions, neither of them has given detailed analysis of Battie's and Monro's texts and of relevant medical and philosophical writings. Doerner's claim that Battie's definition of madness as 'deluded imagination' was anti-Lockean is barely explained; Porter's claim that Battie's theory was derived from Locke seems to be based only on Battie's tangential and insignificant mention of Locke.[11] And the issue between

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extremely fruitful to the chapter.

11. Doerner, Madness and Bourgeoisie, pp.41-42; Porter, Mind-forg'd Manacles, p.193. The part where Battie mentioned Locke's name is concerned about the utilitarian psychology of the pleasure and pain, which does not seem to be the central thesis of Battie's Treatise. Battie, Treatise, p.28. The part Battie mentioned is John Locke, An Essay concerning Human Understanding, ed. by Peter Nidditch (Oxford: Oxford U.P., 1975), 2.21.29.

Doerner and Porter--whether Battie's and Monro's definitions of madness were Lockean or not--does not seem to be a sufficient framework to understand the philosophical background of their disagreement over definition of madness. Instead, I will look closely at the part of their dispute in the light of eighteenth-century philosophical and medical arguments on sense-perception (to which, of course, Locke contributed a lot). I wish to show that not only Battie and Monro but also some other major medical theorists shared the common ground of mid-century epistemology when they talked about madness.

Besides establishing the context of mid-century physiology and epistemology, I want to revise the historical location of Monro's definition of madness. Although many historians have dismissed Monro as a traditionalist, the dismissals are not convincing. Hunter and Macalpine's and Doerner's view that Monro's 'vitiated judgment' supported physical coercion and the sequestration of insanity do not make sense.[12] The assumption that psychiatry progressed from Monro's definition to Battie's has not been substantiated. Indeed, I would like to argue the contrary--the reverse shift of from Battie's definition to Monro's took place in a few decades following their debate. Although the dearth of the materials written by Monro prevented my presenting a definitive claim over the problem of the historical location of Monro, I want to suggest that Monro's definition had its day in the late eighteenth century.

In the following sections I will examine the problems outlined above. In the first section, I will discuss the physiological background of Battie's Treatise. The second section will look at the philosophical background of the dispute. The third and concluding section will include the assessment of Monro's definition of madness, and a general assessment of the dispute.

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12. Hunter and Macalpine, Three Hundred Years, p.412; Doerner, Madness and Bourgeoisie, p.45.

Battie's Physiology of Nerves and Madness

a) The vitalist background in mid-century

The period from about 1740 to 1760 witnessed a major shift in fundamental tenets in natural philosophy. Robert Schofield's classical work dubbed this shift as from mechanism to materialism. By the term Schofield means the shift in the modes of the account of natural phenomena, from explanations with reference to sizes, shapes, and motions of undifferentiable particles to accounts by unique substances endowed with non-mechanical properties.[13] Although Schofield's artificial dichotomy has been challenged, historians generally agree that former belief in mechanical world-view was declining from mid-century, and the search for special properties inherent in matter was gaining impetus.[14]

Physiology in the mid-eighteenth century seems to have reflected the shift in attitudes in natural philosophy.[15] In France, Germany, Scotland and England, Boerhaavian mechanical theory of living organism was challenged and being replaced by animism or vitalism.[16] In Paris,

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13. Robert Schofield, Mechanism and Materialism: British Natural Philosophy in an Age of Reason (Princeton: Princeton University Press, 1970), especially pp.15-16 & 91-114.

14. For criticism of Schofield's view, see P. Heimann, 'Newtonian Natural Philosophy and the Scientific Revolution,' Hist.Sci., 1973, 11: 1-17. Simon Schaffer, 'Natural Philosophy,' in The Ferment of Knowledge, eds. by Rousseau and Porter, 55-91, represents some alternative views on natural philosophy in the eighteenth century.

15. Theodore Brown, however, criticized Schofield's view that English physiology made barometric shifts according to those in natural philosophy, and specified the social circumstance of the shift in mid-century English physiological thinking. See Theodore M. Brown, 'From Mechanism to Vitalism in Eighteenth-Century English Physiology,' Jour.Hist.Bio., 1974, 7: 179-216.

16. A very good general survey of the transitions in the theory of living things is given by Jacques Roger, 'The Living World,' in The Ferment of Knowledge, eds. by Rousseau and Porter, 255-83. The shift in English

Théophile de Bordeu (1722-76) claimed that he discovered an inherent faculty of living tissue, which he named sensibility.[17] At Montpellier, Boissier de Sauvages (1706-67) championed Stahlian animist theory while engaged in the grand project of classifying diseases.[18] At the Royal Academy of Göttingen, Albrecht von Haller (1708-77) read the papers on animal irritability and sensibility, which was to stimulate a host of controversies throughout the rest of the century.[19] In Edinburgh, Robert Whytt (1714-66) (who was later involved into a series of bitter controversies with Haller) published An Essay on the Vital and Other Involuntary Motions of Animals (1751), in which he discarded the mechanical explanation of muscle contraction and attributed it to the

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medicine in this period is lucidly surveyed by Brown, 'From Mechanism to Vitalism.'

17. Elizabeth L. Haigh, 'Vitalism, the Soul, and Sensibility: the Physiology of Théophile Bordeu,' Jour.Hist.Med, 1976, **31**: 30-41; idem, 'The Roots of Vitalism of Xavier Bichat,' Bull.Hist.Med., 1975, **49**: 72-86.

18. Roger French, 'Sickness and the Soul: Stahl, Hoffmann and Sauvages on Pathology,' in The Medical Enlightenment of the Eighteenth Century, eds. by Andrew Cunningham and Roger French (Cambridge: Cambridge U.P., 1990), 88-110; idem, 'Sauvages, Whytt and the Motion of the Heart: Aspects of Eighteenth Century Animism,' Clio Medica, 1972, **7**: 35-54; Julian Martin, 'Sauvages' Nosology: Medical Enlightenment in Montpellier,' in The Medical Enlightenment of the Eighteenth Century, eds. by Cunningham and French, 111-37; Roselyne Rey, 'L'approche de la folie chez quelques médecins vitalistes du XVIIIe siècle,' in La folie et le corps, ed. by Jean Céard (Paris: Presses de l'École Normale Supérieure, 1985), 111-40.

19. There are ever-growing studies on Haller's life and ideas. See DSB; Lester King, 'Introduction' to Albrecht von Haller, First Lines of Physiology (Edinburgh, 1786; rept., New York: Johnson Reprint Corporations, 1966), ix-lxxii; Shirley A. Roe, 'Anatomia Animata: the Newtonian Physiology of Albrecht von Haller,' in Transformation and Tradition in the Science: Essays in Honour of I. Bernard Cohen, ed. by Everett Mendelsohn (Cambridge: Cambridge U.P., 1984), 273-300; Owsei Temkin, 'Introduction' to Albrecht von Haller, A Dissertation on the Sensible and Irritable Parts of Animals, (Baltimore: John Hospkins Press, 1936).

'sentient principle' of the soul.[20]

England was not untouched by this shift. From the 1750s, the waves of the reform in physiology became tangible in England, with special attention to Haller and Whytt. Richard Brocklesby (1722-97), exactly following Haller's lead, published 'An Account of Some Experiments on the Sensibility and Irritability of the Several Parts of Animals' in Philosophical Transactions in 1755.[21] Haller's revision of the Boerhaavean system made its way into both privileged and peripheral physiological lectures in London. Battie gave the Lumleian Lectures from 1749 to 1754, which were afterward published as De Principiis Animalibus (1757), in which he made use of Haller's ideas; Mark Akenside (1721-70), a Gulstonian lecturer in 1755, used Haller almost as an arbiter to settle his dispute with Alexander Monro secundus (1733-1817); Malcolm Flemyng (1702-64), one of Haller's correspondents, modelled his private lectures on physiology in London in 1751 after Haller's First Lines of Physiology and encouraged the listeners to read Haller, as well as his opponent Whytt; Charles Nicholas Jenty, a self-styled 'professor of anatomy and surgery in London,' wrote that 'ingenious Professor Haller, whose works being so well known, need not any encomium, having been always esteemed the best collections of physiological essays that ever has been published.'[22]

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20. R.K. French, Robert Whytt, the Soul, and Medicine, (London: The Wellcome Historical Medical Library, 1969); idem, 'Sauvages, Whytt and the Motion of the Heart,' include a good account of Whytt's own idea and of his controversy with Haller; Christopher Lawrence, 'Medicine as Culture: Edinburgh and the Scottish Enlightenment,' University College London, Ph.D., 1984, chap.4 presents and overall view of Whytt as a professor of medicine.

21. Schofield, Mechanism and Materialism, pp.192-98; Brown, 'From Mechanism to Vitalism.'

22. William Battie, De Principiis Animalibus. The comment that this work owed a lot to Haller was made by Max Neuburger, The Historical Development of Experimental Brain and Spinal Cord Physiology before Flourens, trans. and ed. by Edwin Clarke (Baltimore and London: The Johns Hopkins U.P. 1981) p.146. See Mark Akenside, Notes on the Postscript to a Pamphlet Intitled "Observation Anatomical and

Probably riding the wave, John Shebbeare (1709-88), an anti-whig political writer with dubious medical background, founded his Practice of Physic on the fanciful basis of 'animal fire.'[23]

The most important focus where the Schofieldian materialist search for unique properties in living thing was the nervous system.[24] The vitalistic medical writers mentioned above were all highly interested in the functions of the nerves of living animals. Especially, Haller's experiments showed that living animals had sensation of pain when stimulated on their nerves, while the other parts did not produce the same effect. This observation lead Haller to conclude that a special property of sensibility resides in the medullary substance of nerves, which should be differentiated from the other insensible parts of the body.[25] Haller believed that this discovery led to a crucial revision of the system of Boerhaave, who had stated that all solids parts of human body were made up of essentially uniform ultimate units of nervous fibres. Unlike Boerhaave's homogeneous human body, Haller's was heterogeneous, with some parts provided with sensibility, some with irritability, some totally

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Physiological, etc. by Alexander Monro, Junior,..." (London: R. & J. Dodsley, 1758); Malcolm Flemyng, An Introduction to Physiology, Being a Course of Lectures (London: J. Nourse, 1759); Charles Nicholas Jenty, A Course of Anatomico-Physiological Lectures on the Human Structure and Animal Oeconomy , 3 vols., (London: J. Rivington & James Fletcher, 1757), vol.1, vi-vii. Jenty seems to have been an associate correspondent of Academie Royale des Sciences.

23. John Shebbeare, The Practice of Physic, 2 vols. (London: J. Hodges, 1755). Although Shebbeare claimed in the title page that he had obtained M.D. at Paris and had been elected the fellow of Académie Royale des sciences, DNB does not take this seriously.

24. See Neuburger, The Historical Development; Mary A.B. Brazier, A History of Neurophysiology in the Seventeenth and Eighteenth Centuries (New York: Raven Press, 1984); Christopher Lawrence, 'The Nervous System and Society in the Scottish Enlightenment,' in Natural Order: Historical Studies of Scientific Culture, eds. by Barry Barnes and Steven Shapin (Beverly Hills: Sage Publications, 1979), 19-40.

25. Haller, Dissertation, p.13.

senseless and motionless.[26]

This categorical separation of nerves from the other parts of the body prompted revisions of Cartesian dualism of active mind/soul and passive body, for the body was no longer uniformly passive and senseless. The nerves thus became the third intermediate agent with special property to fill the gap between the mind and the body. Instead of dichotomy of the mind-body, the trichotomy of the mind-nerves-body appeared, for nerves were neither the mind nor the rest of the body.[27] Like the schemes of the Pre-Cartesian animal spirits and of Willis's soul of brutes, mid-eighteenth-century physicians said that there are three ontologically different things in man: mind, body, and nerves as their medium. As if to epitomize the shift, David Kinneir at Boerhaavian Edinburgh wrote in 1738 that 'the nervous fluid is mere matter, which, as such, having no claim to sense, cannot of itself, being material, be the source of our senses,' while the anonymous author of An Enquiry into the Nature of the Soul (1750) maintained that 'there is something in the nature of matter unknown, ... that can brought to that perfection in our frame, as to occasion this connection [of mind and body], and arrive at a fitness to be a co-partner with the mind, in all its operations.'[28]

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26. Haller, Dissertation, p.9; as for Boerhaave's idea of fibres as ultimate units, see L.J. Rather, 'Some Relations between Eighteenth-Century Fiber Theory and Nineteenth-Century Cell Theory,' Clio Medica, 1969, **4**: 191-202.

27. Christopher Lawrence called the Edinburgh version of this shift 'from Cartesian dualism to monism.' I do not think the term 'monism' represents the shift well. Neither Whytt nor Cullen denied the existence of immaterial substance in man. See Lawrence, 'The Nervous System and Society in the Scottish Enlightenment,' 24-25. See also Karl Figlio, 'Theories of Perception and the Physiology of Mind in the Late Eighteenth Century,' Hist.Sci., 1975, 12: 177-212.

28. David Kinneir, A New Essay on the Nerves (London: W. Innyes et al., 1738), p.11; An Enquiry into the Nature of the Soul, Its Origins, Properties, and Faculties: considered both in regard to itself and its union with the body (London: E. Owen, 1750), pp.45-47. The author shows competent knowledge of physiological topics then; reproduction of polyp,

Mid-century vitalism; Haller's influence on the English medical scene; sensibility of nerves; new status given to the nerves in mind-body interaction: these were the components of the background against which Battie composed his Treatise on Madness.

b) 'Original' and 'consequential' madness

Battie introduced his book with a section in which he lamented the unfortunate state of knowledge about madness at his time, attributing it to the lack of any precise definition of the disease and the confusion of its accidental symptoms with the constant, necessary, and essential symptoms. To rectify that miserable state, he tried to 'fix a clear and determinate meaning to the word madness.'[29] After finding some definitions insufficient, Battie concluded that madness consisted in 'perception of objects not really existing or not really corresponding to the senses,' and this symptom 'precisely discriminates [madness] from all other animal disorders.'[30] He then proceeded to identify this erroneous or false perception with 'deluded imagination.'

Then Battie left the domain of defining madness for a search into its proximate cause. As the false perception was caused by 'a preternatural state or disorder of sensation,' Battie stated that it was necessary to find precisely where sensation resided. While searching for a real seat of sensation, Battie refuted two Boerhaavian theories on sensation then prevalent. One was the theory that sensation was caused by the nervous fluid flowing the duct of hollow tubes of the nerves, secreted in the cortical part of the brain. The other was that nervous disorders were caused by

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the contraction of the legs of the decapitated frog (experiment made by Hales, Whytt, and Alexander Stuart).

29. Battie, Treatise, pp.3-4. This effort of Battie's suggest that he was touched by another emerging medical trend of nosology or classification of diseases. As for eighteenth-century nosology, see chapter six below.

30. Battie, Treatise, pp.4-6.

weakness or laxity of nerves.[31] Against the former, Battie argued on an anatomical basis, and showed that there was no resemblance between the cortical portion of the brain and the secretory organs of a gland.[32] The latter was, in contrast, denied on an aprioristic ground. Battie observed that the phrase of 'weakness of nerves' implied that 'sensation itself is owing to the loose cohaesion of those material particles which constitute the nervous substance,' which Battie rejected from the beginning:

> By this inaccurate manner of talking, the most distinguishing property of animal nature is in danger of being blended with inanimate matter. For, if the case really were what there words seem to import, all bodies whose particles do not cohaere with too great degree of proximity would be nervous, that is endued with sensation. But since, no portion of matter, however loosely compacted, is nervous except it is part of an animal body, therefore the medullary substance of a nerve is endued with sensation not because its constituent particles are loosely united.[33]

Battie's assumption here is crystal-clear. The medullary substance of nerves must be fundamentally different from the other material particles; nerves in living things were endowed with a unique property of sensation, which no inanimate matter was capable of; different types of languages were needed for the studies of animate and inanimate things. Battie did not like the term 'weak nerves' because it made it sound as if the nervous system were an inanimate machine. Battie thus concluded that nervous filaments were as 'distinct from every other material substance consisting of parts extended and equally cohaering, as a man from a carcas, or an

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31. Battie, Treatise, pp.13-18.

32. Battie, Treatise, p.16.

33. Battie, Treatise, p.17.

horse from an equestrian statue.'[34]

After a long and very careful discussion (Monro said this part was over-logical and scholastic), Battie concluded that the ultimate cause of sensation was the 'pressure upon the medullary substance contained in the nervous filaments.'[35] Then Battie proceeded to identify the cause of false perception with disorder in the nervous substance:

> one immediate necessary and sufficient cause of the preternatural and false perception of objects, which either do not exist, or which do not in this instance excite such sensation, must be some disorder of that substance which is medullary and strictly nervous.[36]

Battie refused to go any further than 'some new disposition of the arrangement of the internal substance of nerves,' for Battie believed that there was no knowing what was actually happening in the medullary substance when a man had true or false perception: 'what passes within [the nerves] being meer conjecture.'[37] The medullary substance of nerves had the property to cause sensation in man, but its internal mechanism was hidden.

Since there was no knowing the internal mechanism of the vitalistic property of nerves, 'the immediate and internal cause of delusive sensation is absolutely hid.' There were, however, some cases of delusive sensation whose 'remoter and external causes discover themselves to the by-stander.'[38] Battie thus divided madness according to the seat of the disorder of the nerves:

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34. Battie, Treatise, p.18.

35. Battie, Treatise, pp.19-26; Monro, Remarks, pp.9-19.

36. Battie, Treatise, p.41.

37. Battie, Treatise, p.26.

38. Battie, Treatise, p.42.

> From whence we may collect that madness with respect to its causes is distinguishable into two species. The first is solely owing to an internal disorder of the nervous substance: the second is likewise owing to the same nervous substance being indeed in like manner disordered, but disordered ab extra; and therefore is chiefly to be attributed to some remote and accidental cause. The first species, until a better name can be found, may be called original, and the second may be called consequential.[39]

Battie did not talk much about original madness, since its causes were totally unknown. In contrast, he was eloquent about the causes of consequential madness. Anything that could place unnatural pressure upon the nervous substance would cause madness: 'the internal exostoses of the cranium'; 'the induration of the sinus's and processes of the Dura Mater'; 'a sudden inflammation arising in those membranes which surround and therefore thus distended compress the contents of the cranium and its nervous appendages'; and 'a gradual congestion of serum or other fluid matter upon the same membranes which envelope the medullary substance.'[40] Original and consequential madness were, therefore, respectively, the madness whose cause was hidden within the nervous substance, and the madness whose causes could be discovered in external and adjacent parts of the nerves.[41]

The idea of dividing nervous disorders into inside/outside disorders was expressed in a very similar way in The Construction of the Nerves, and the Causes of Nervous Disorders, a tract by one Christian Uvedale,

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39. Battie, Treatise, pp.43-44.

40. Battie, Treatise, pp.46-48.

41. Hunter and Macalpine made an uncharacteristic misinterpretation of Battie's distinction of original and consequential madness. Their identification of Battie's original and consequential with 'non-organic and organic' (Hunter and Macalpine, 'Introduction,' p.15.) is just wrong. Both original and consequential madness are 'organic.'

published in the same year as Battie's Treatise.[42] Uvedale observed that when the fluid contained in the nerves was interrupted or clogged, the nerves could not perform their offices properly and the results would be lowness of spirits, extravagant fancies, vain terrors, unreal joys, and at last, madness.[43] This interruption could happen, stated Uvedale, by way of the pressure from the adjacent part to the nerves:

> Any thing that comes into contact with the nerves may stop or disorder the free course of their fluid; the flesh is everywhere in contact with them, therefore it may disorder them throughout.[44]

In search of causes of nervous disorders, Uvedale looked at not the internal and hidden structure of the nerves, but at the outside, surrounding, and more easily visible part of them. Uvedale claimed that causation of nervous disorders by the pressure from outside is his own discovery, and he contrasted this to already known internal disorders of nerves:

> many disorders of the nerves may be attributed to a cause not hitherto regarded, the distemperature of the circumambient flesh. But [nerves] have also affections of their own, and are subject to disorders, in which the flesh has no share. This gives us a division of the nervous disorders into two kinds, which I do not remember to have met with in medical writers, but which is of great importance toward their cure. When the disorders of the nerves are owing to an unhealthy or unnatural condition of the flesh. the

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42. Christian Uvedale, The Construction of the Nerves, and the Causes of Nervous Disorders, (London: R. Baldwin, 1758). Almost nothing is known about the author.

43. Uvedale, Construction, p.11.

44. Uvedale, Construction, p.13.

> disease can only be attacked rationally by those remedies, which will reduce the body in general to a proper state; but when the nerves themselves are disordered, particular remedies must be sought for them.[45]

Uvedale's principle in the division of nervous disorders was almost identical to Battie's: Uvedale's 'affections of [nerves'] own' is Battie's 'original' nervous disease, and the former's 'distemperature of the circumambient flesh' is the latter's 'consequential' one.

There is, at present, no knowing whether Battie and Uvedale knew each other's work, or one borrowed from the other, or they 'discovered' the division independently.[46] Whichever is the case, it seems very likely that in dividing the causes of nervous disorders into internal and external ones, they shared a common inspiration of Haller's experiments on animal sensibility.

c) The Hallerian model of madness

In 1753, Haller's tract on animal sensibility and irritability, based on the two papers read before the Royal Academy of Sciences of Göttingen the year before, appeared in print. The tract had an enormous impact on eighteenth-century physiology. On the Continent, many Stahlians such like Le Cat (1700-1768) and Delius (1720-1791) stood up against Haller and accused him of separating irritability from the soul, and in Edinburgh, Whytt opposed Haller on experimental bases and claimed that irritability

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45. Uvedale, Construction, p.13.

46. As Battie's Treatise actually appeared in December in 1757, perhaps earlier than Uvedale's, it is unlikely that Battie read Uvedale's book before he composed Treatise. Uvedale, however, made a very strong claim of his originality, and his model is quite different from Battie's. I would like to suggest that they reached the same idea independently, on the common basis of Haller's experiment. Uvedale explicitly mentioned Haller as the source of his idea of nervous fluid.

was not independent of the sensibility and the nerves, and, ultimately, from the soul.[47] England does not seem to have produced a serious and critical reaction equal in stature to Whytt, probably because the 1750s was the time when physiological study in England reached 'the lowest point in its history,' as Theodore Brown has assessed.[48] Haller's Dissertation was, however, well-known in the English medical scene: English translation was published with Tissot's preface two years after the original: Brocklesby, Jenty, and Flemyng were disseminating Haller's ideas as I have mentioned above.[49]

In that provocative tract, Haller made a clear distinction between sensibility, the property of nerves to cause sensation in the living animal, and irritability, the property of muscle fibres to contract when stimulated. I will confine my discussion here to Haller's idea on the former, as it seems that the idea on irritability has little to do with Battie's Treatise.[50] Haller's success lay largely in that he built his argument on solid experimental bases. His experiments were as follows:

I took living animals of different kinds, and different ages, and after

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47. See Temkin, 'Introduction,' to Haller, Dissertation, p.3; Neuburger, The Historical Development, pp.118-52; French, Robert Whytt, pp.63-76; idem, 'Sauvages, Whytt.'

48. Theodore M. Brown, 'From Mechanism to Vitalism,' 179-81.

49. Malcolm Flemyng, The Nature of the Nervous Fluid, or Animal Spirits, Demonstrated (London: A. Millar, 1751) was heavily dependent on Haller, but mainly on his argument for the existence of nervous fluid; idem, An Introduction to Physiology contained the explanation of irritability (p.174). As for Brocklesby's paper in Philosophical Transactions and Battie's De Principiis Animalibus Exertationes, see Max Neuburger, The Historical Development, p.146.

50. Hunter and Macalpine has written that Haller's idea of irritability was one of the neuro-physiological concepts Battie applied to the account of madness, and G.S. Rousseau repeated the statement. I would like to argue that the idea of sensibility played far more important a role in Battie's Treatise. Hunter and Macalpine, Three Hundred Years, p.405; Rousseau, 'Science,' 182.

> having laid bare that part I wanted to examine, I waited till the animal ceased to struggle or complain; after which I irritated the part, by blowing, heat, spirit of wine, the scalpel, lapis infinalis, oil of vitriol, and butter of antimony. I examined attentively, whether upon touching, cutting, burning, or lacerating the part, the animal seemed disquieted, made a noise, struggled, or pulled back the wounded limb, if the part was convulsed, or if nothing of all this happened.[51]

Through numerous experiments, he found that only the parts supplied with nerves were sensible and concluded that the medullary substance of the nerves was the sole source of sensibility.[52]

The influence of Haller's experiments is manifest in Battie's work. (Battie might have attended the experiments done by Brocklesby, as Battie was elected Fellow of the Royal Society in 1741.)[53] On closer scrutiny, indeed, it turned out that Battie modelled his argument on madness very faithfully on Haller's experiment.

To start with, Battie's identification of the seat of sensibility exactly followed the experimental pattern put forward by Haller. Battie wrote:

> If a nerve in a living body be distracted by external force, there immediately arises an exquisite sensation called pain... If to a nerve in a living body be applied any acrimonious objects ... there immediately arises the same painful sensation.[54]

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51. Haller, Dissertation, pp.9-10.

52. Haller, Dissertation, pp.20-21, & 24.

53. As early as in 1900, Heinrich Laehr briefly pointed out Battie's Treatise was influenced by Haller's idea. See Laehr, Die Literature der Psychiatrie, 'Battie, W.'

54. Battie, Treatise, p.10.

In an identical manner with Haller, Battie went on to argue that the nervous membranes were void of sensation, because 'upon the application of any external objects they all discover no extraordinary signs of sensibility.'[55] Battie's conclusion on the seat of sensation is almost an exact copy of Haller's:

> All which constant and uncontroverted observations prove, 1. That the nervous or medullary substance derived from or rather communicating with the brain is the seat or instrument of natural sensation: 2. That no other matter, whatever, whether animated or not, is such seat or instrument.[56]

Haller's influence is the most evident in the core of Battie's Treatise, the causation of madness or false perception. Both Haller's experiments and Battie's explanation of madness were concerned with causing sensation by irritating the nerves. Just as Haller's animals have the sensation of pain when stimulated on their nerves, Battie's madmen have false sensation or the 'perception of things which really do not exist,' when anything unnatural happened in their nerves. Especially, Battie's (and Uvedale's) model of 'consequential' nervous disorder caused by the irritation of the nerves from the adjacent parts was a faithful analogue of Haller's experiments. Just as Haller's animals had sensation of pain when given stimuli upon the nerves of animals by blowing, heat, chemicals, Battie's and Uvedale's madmen had delusive sensation when the surrounding parts of nerves gave unnatural irritation to the medullary substance. The causes of consequential madness, such as the inflammation of the tissues around the nerves, the pressure of the growing bones on the

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55. Battie, Treatise, p.11. Compare with Haller, Dissertation, pp.20-21.

56. Battie, Treatise, p.12. Compare with Haller, Dissertation, p.24, in which he wrote: 'Wherefore the nerves alone are sensible for themselves, and their whole sensibility resides in their medullary part, which is a production of the internal substance of the brain.'

brain, the congesting serum giving pressure upon the nerves were pathological analogues of the simulations given to the nerves of living animals in Haller's experiments.

Moreover, Battie and Haller shared the same ideal about how to achieve a successful explanation of phenomena in living body, how to construct and limit the scope of medical discourses, and where medical explanations should stop. As I discussed above, Battie was resolute in not wanting to go further than the observation that pressure upon the medullary substance would cause sensation: 'Thus far and no farther our knowledge of these matters reaches, limited by outside of the seat of sensation.'[57] This limit was also the case with Haller, who, unlike many of his contemporaries, made recourse neither to mechanist nor to animist speculations about the mechanism of sensation.[58] Medical knowledge, stated Haller, could never penetrate into what was happening in sensible nerves and irritable muscle fibres:

> But the theory, why some parts of the human body are endowed with these properties, while others are not, I shall not at all meddle with. For I am persuaded that the source of both lies concealed beyond the reach of the knife and microscope, beyond which I do no chuse to hazard many conjectures, as I have no desire of teaching what I am ignorant of myself.[59]

Almost certainly following the example of Haller, Battie limited his account of the production of false sensation to the external structure of the nerves and refrained from making conjectures into the internal mechanism of sensation. His adoption of Haller's experimental method as the guide was more thorough and consistent than many English Hallerians of his

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57. Battie, Treatise, p.26.

58. Temkin, 'Introduction,' p.2.

59. Haller, Dissertation, p.8.

time, and, in a sense, even more so than Haller himself. Haller did not suggest the existence of the nervous fluid in his Dissertation, but vigorously supported the doctrine in his other works, which was followed by many mid-century English medical writers.[60] Unlike them, Battie did not adopt Haller's tentative suggestion of the existence of nervous fluid and constructed an account of madness that could do without the fluid.[61] The doctrine of the nervous fluid was, for Battie, a fanciful theory that deserved no discussion.

This is why Battie spoke very little about 'original' madness and gave it up as incurable. When the disorder lay in the hidden and unknown internal mechanism of nerves, one could not know its cause and cure the disease.[62] In contrast to the pessimism about understanding 'original' madness, as for 'consequential' madness there was the definite method to tell its cause, i.e. post mortem. Like Haller's vivisected animals, the opened bodies of madmen would tell which part was responsible for the false sensation he had. And many of the causes of consequential madness were expressed in a visible language of morbid signs.

Post mortem of those who died mad was, of course, not unknown before Battie.[63] Indeed, there seems to have taken place a new or renewed interest in the dissection of the brain around Battie's time. On the Continent, Gianbattista Morgagni's (1682-1771) monumental De

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60. Richard Brocklesby, Reflections on Ancients and Modern Musick, with the Application to the Cure of Diseases (London: M. Cooper, 1749), pp.pp.45-6; Flemyng, An Introduction to Physiology, pp.156-9; Flemyng also devoted a whole book to the issue: The Nature of the Nervous Fluid, or Animal Spirits, Demonstrated; Jenty, A Course of Anatomico-Physiological Lectures, vol.3., pp.210-14 and pp.505-9.

61. Battie, Treatise, pp.14-16 suggested that nervous fluid is an imaginary one. Significantly, he did not defend the 'alternative' view of elastic threads.

62. Battie, Treatise, pp.42, 61, 70.

63. A historical study of the brain anatomy and medical account of madness in the eighteenth century is wanting.

Sedibus appeared in 1761 and was translated into English eight years later: in his famous experiment before the Prussian Royal Academy in 1764, J.F. Meckel (1714-74) weighed cubes taken from the brains and concluded that the brains of those who died maniacal were lighter.[64] In England, J.M. Stevens published An Essay on the Diseases of the Head and Neck in the same year when Battie's Treatise appeared. There Stevens observed that 'on opening the bodies of those which died of [madness], nothing is found different from the bodies of sound persons, except an induration of the meninges of the brain, and a dryness and yellowness of its cortical substance.'[65] Battie's Treatise seems to have been one of the important pieces of the trend.

Since the causes of consequential madness were within our reach of morbid pathological observation and they were so to speak post-mortem analogue of Haller's experiments, there was greater prospect of curing it: 'here to our great comfort we shall find that Consequential madness is frequently manageable by human art,' because:

> Altho' delusive sensation, by whatever external accident it may be occasioned, when considered as a distempered state of the nerves themselves, admits of no rational or specific relief any more than Madness which is not consequential to any known cause; nevertheless the previous disorders and external causes of delusive sensation are frequently within our reach.[66]

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64. Giovanni Battista Morgagni, The Seats and Causes of Diseases Investigated by Anatomy, 3 vols, (London: Millar et al., 1769). See Hunter and Macalpine, Three Hundred Years, pp.441-44. Meckel's paper, 'recherches anatomico-physiologique sur les causes de la folie,' appeared in Mémoire académique, Berlin, 1764, 20. See a perceptive account of the paper by Michel Foucault, The Birth of the Clinic (London: Routledge, 1973; rept. 1989), pp.12-13.

65. J.M. Stevens, An Essay on the Diseases of the Head and Neck (Bath: J. Leake, 1758), p.37. Almost nothing is known about the author.

66. Battie, Treatise, p.72.

Consequential madness was, unlike original madness, a proper object of Battie's medical discourse that was limited within the visible and external parts of the nerves. The internal part of the nerves with its unique property remains a black box.

To sum up, Battie proposed to construct a visible, tangible, and anatomical research programme to study madness, based on Haller's experimental model. Although he did not make Hallerian experiments on the nerves of man to see whether he had a deluded imagination when given a stimulus on the nerves, Battie tried to fashion his discourse based on Haller's experiments on the production of sensation. Battie, thus, abandoned the explanatory models of invisible animal spirits, vibrations, etc. He instead created an account of madness whose vital parts could be based on visible anatomical observations, revealed at post mortem. The greatest irony was that Haller himself, on reading Battie's Treatise did not recognize it as a faithful replica of his own works applied to madness: 'j'ai commence a lire mes livres anglais. J'ai peu profite de Battie on Madness, c'est theorie toute pure, sans ombre d'experience.'[67]

Imagination and Judgment: philosophical background of the dispute

a) Madness as disorder in imagination and judgment

Battie defined madness as 'perception of objects not really existing or not really corresponding to the senses.' He identified this with 'deluded imagination' and 'delusive sensation,' and went on to physiological and pathological consideration of sensation. The underlying assumption here was that there existed an unbroken causal link from the delusive sensation to the deluded imagination and from the deluded imagination to the false perception. So, if one admits that madness consists in false perception, it

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67. A letter of Haller to Tissot, dated 3 Dec 1759. Albrecht von Hallers Briefe an August Tissot (Bern: H. Huber, 1977), p.87. He again showed dissatisfaction at Battie in a letter dated 17 Dec 1759. See ibid, p.90.

necessarily leads to attribution of it to delusive sensation. It was to this link that Monro launched the most substantial attack in his Remarks.[68]

Monro was not satisfied with Battie's definition of madness as 'deluded imagination':

> It is certain that the imagination may be deluded where there is not the least suspicion of madness, as by drunkenness, or by hypochondriacal and hysterical affections; there may be real madness where the imagination is not affected; so that a deluded imagination is not in my opinion the true criterion of madness. The judgment is as much or more concerned than the imagination, and I should rather define madness to be a vitiated judgment...[69]

Monro observed that the key defect lay in judgment: in some cases of madness both judgment and imagination were hurt and in others judgment was affected and imagination was untouched. He concluded that 'I am pretty certain, there is no case in which the judgment is not vitiated.'[70]

But what did Monro mean by rejecting deluded imagination and proposing vitiated judgment as an alternative? This will be rendered clear when we consult Monro's citation of 'the following remarkable sentence' of Aretaeus:

> These men [melancholiacs] are mistaken in their perception, they see objects that are not present, as if they were present, and they

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68. In general, Monro's Remarks is rather a piece-meal attack on Battie paragraph by paragraph, and rarely contains fruitful criticisms on the overall project of Battie (there is no visible sign that Monro understood the Hallerian framework of Battie's argument), still more rarely presents Monro's own alternative account of madness. The part where Monro criticized Battie's definition of 'deluded imagination' (pp.3-9) is almost the only exception in which Monro put down an alternative view.

69. Monro, Remarks, p.4.

70. Monro, Remarks, pp.5-6.

> fancy they see what appears to no other person: whereas, those who are furious [maniacs], see exactly as they ought, but do not judge of objects as they ought to judge.[71]

Monro argued that in melancholy, the image of things that do not exist was presented in the mind of the patients (hence, imagination was deluded), and they judged that they saw the things (hence, judgment was vitiated, too). In mania, in contrast, although the image presented to the mind was correct (hence, imagination was not deluded), the patients did not make a proper judgment on the image (hence, only judgment was vitiated). In a word, as Monro put it, madmen 'see right, but judge wrong.'[72]

Take, for explanation's sake, the example of a madman who thinks that he is a king and that he holds a scepter, although, in reality, what he holds is a mere rod. Battie's explanation runs as follows: some parts of his medullary substance of nerves and/or brain are disordered to produce a false sensation; accordingly, his imagination is deluded and a false image of a scepter is presented to his mind; hence, he has a false perception of a scepter. Monro's account differs: there's no fault in the madman's faculty of image-making; the madman believes that he has a scepter because he made a wrong judgment on a correct image of the rod. Monro thus did not reject Battie's entire argument, but admitted that the belief in things that did not exist was crucial characteristic of madness. Battie and Monro agreed that they should characterize madness by false perception. They, however, attributed it to the different faculties of mind.

This split between Battie and Monro had a common basis of the then widely accepted medical idea that delirium was a disorder of both imagination and judgment. A suitable place to look at the common basis is Boerhaave's definition of delirium in his Aphorisms:

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71. Monro, Remarks, p.4.

72. Monro, Remarks, p.4.

> A delirium is that production of ideas, which does not agree with the external causes, but only is the effect of the internal state of the brain, together with a judgment following from these ideas...[73]

The first half of this definition says that imagination is hurt in delirium. Making an image of a thing that does not exist was considered as an operation of imagination, and the formation of a false image was attributed to a disorder in imagination.[74] And the latter half of the definition above says that, besides imagination deluded, false judgment is an integral part of delirium. Note that Boerhaave did not claim that the disorder in imagination alone sufficiently described delirium, as Battie did. Neither did Boerhaave maintain that judgment alone is disordered, as Monro tended to claim. Boerhaave held a twofold definition of delirium in which both imagination and judgment were hurt.

And many eighteenth-century physicians seem to have followed the twofold definition of delirium. An Italian physician Lucca Tozzi (1638-1717) wrote in 1711 that delirium was a disorder 'in faculties of imagination and judgment.'[75] David MacBride (1726-78), a physician

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73. Herman Boerhaave, Aphorisms, (London: W. Innys et al., 1755), p.172. Boerhaave's Aphorisms was published in Latin in seven countries and English translation was published at least three times. In addition, a voluminous (eighteen volumes) commentary on it by Gerald van Swieten, a Viennese professor of Medicine, was translated into English twice and abridged version (five volumes) of it were published. As for comparison of Boerhaave's idea on melancholia with Laurentis and Willis, see T.H. Jobe, 'Medical Theories of Melancholia in the Seventeenth and Early Eighteenth Centuries,' Clio Medica, 1976, 11: 217-31. The philosophical background of Boerhaave's idea on madness is perceptively discussed in John P. Wright, 'Boerhaave on Minds, Human Beings, and Mental Diseases,' Studies in Eighteenth-Century Culture, 1990, 20: 289-302.

74. For Boerhaave's use of the term 'imagination,' see Herman Boerhaave, Dr. Boerhaave's Academical Lectures on the Theory of Physic, 6 vols. (London: W. Innys, 1742-46), vol.4., p.257.

75. Lucca Tozzi, Opera Omnia 5 vols. (Venice: N. Pexxana, 1711), tom. 1., p.139. Thomas Arnold Observations on the Nature, Kinds, Causes and Prevention of Insanity, 2nd ed. (London: Phillips, 1806), pp.34-40, contains

trained at Glasgow, regarded delirium as a disorder in which man failed to 'judge truly of the [mental] impression,' because 'the powers of memory and imagination are confused and perverted.' William Cullen defined it as a 'false judgment, arising from perception of imagination.'[76]

And if one takes a longer time-span, one sees that pre-Cartesian medical writers had been engaged in a similar twofold characterization of madness. As I have examined in chapter one, Renaissance and Neo-classical doctors thought that madness was the disorder in which imagination and reasoning were hurt. There was even disagreement over which faculty was principally affected, for Robert Burton wrote, 'many doubts ... arise about the affection [of melancholy], whether it be imagination or reason alone, or both.'[77] Burton summarized the disagreement, writing some believed that 'the sole fault is in imagination,' some maintained that 'reason was in fault as well as imagination,' and the majority believed that both faculties were affected, 'first in imagination, and afterwards in reason.'[78] Mutatis mutandis, the first reads just like Battie's position, the second Monro's, and the third Boerhaave's.

Both before and after Battie-Monro dispute, therefore, many physicians in the seventeenth and eighteenth centuries defined delirium as a combined disorder of both the faculty of making images and that of making judgment. In that sense, the Battie-Monro dispute over the faculty affected in madness was a part of the long tradition of medical

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more than 20 references in which madness or delirium was defined by imagination and judgment.

76. David MacBride, A Methodical Introduction to the Theory and Practice of Physick (London: W. Strahan et al., 1772), pp.80-81; William Cullen, The Works of William Cullen, M.D., 2 vols., (Edinburgh: W. Blackwood, 1827), vol.1, pp.510-11. As for Arnold and Cullen, see next chapter.

77. Robert Burton, The Anatomy of Melancholy, ed. and intro. by Holbrook Jackson (New York: Vintage Books, 1977), part I, p.171.

78. Burton, The Anatomy of Melancholy, part I, p.171.

understanding of the disease. Indeed, the source of their split was a built-in part of the medical definition of madness as a disorder in two mental faculties.

b) Lockean sensation and judgment: 'Molyneux's Question'

I have showed that madness at the time of Battie-Monro dispute was principally framed around the issue of man's ability to know an external object, in which two processes of imagination and judgment were involved. I will argue below that the twofold characterization was also the case with normal perception understood by eighteenth-century philosophical writers, who were, largely following Locke's lead, keen to distinguish two processes in the perception of external objects.[79]

Locke is usually regarded as the first philosopher who divided the process of man's sense-perception into what are today called sensation and perception. Locke, however, did not use the same terminology as today: rather, he divided the process of 'perception' (by which term, he here meant the whole process of acquiring a piece of knowledge about external objects) into 'sensation' and 'judgment.'[80] (Note the striking similarity with Battie's and Monro's terminology.) To elucidate his point, Locke gave an example: when a globe of uniform colour is perceived by us, 'the idea thereby imprinted in our mind, is a flat circle variously shadowed.' A grown person, however, by virtue of his/her experience, judges that what the idea stands for is a globe of uniform colour: 'the judgment presently, by an habitual custom, alters the appearances into their causes.' Here

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79. As for the philosophical problem of perception, see John Yolton, Perceptual Acquaintance from Descartes to Reid (Oxford: Basil Blackwell, 1984); idem, '"As in a Looking-Glass": Perceptual Acquaintance in Eighteenth-Century Britain,' Jour.Hist.Ideas, 1979, **40**: 207-34.

80. Locke, Essay, 2.9.8. As for a philosophical interpretations of this passage, see Richard I. Aaron, John Locke, 3rd ed. (Oxford: Clarendon Press, 1971), pp.133-36; John Yolton, Locke: an Introduction (Oxford: Basil Blackwell, 1985), chap.5.

Locke stated that our knowledge of external things had two things in it: sensation and judgment.

Locke added in the second edition of his Essay the famous 'Molyneux's question,' whose vivid presentation of the problem contributed a lot in making Locke's idea on the two stages of perception popular among philosophers at that time.[81] The problem was presented as follows:

> Suppose a man born blind, and now adult, and taught by his touch to distinguish between a cube and a sphere ... so as to tell, when he felt one and the other, which is the cube, which is the sphere. Suppose then the cube and sphere placed on a table, and the blind man be made to see: quaere, whether by his sight, before he touched them, he could now distinguish and tell which is the globe, which the cube?[82]

Locke's tentative answer to the question was negative. Though the man had a correct sensation, he could not make a proper judgment upon the sensation, due to his lack of experience in sight.

This problem appeared in many of the writings of major British philosophers in the early eighteenth century. Berkeley illustrated the same problem by the example of the difference between seeing a portrait and judging the sitter: David Hume made a similar observation upon sensation

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81. For detailed historical study of 'Molyneux's question,' see Michel J. Morgan, Molyneux's Question: Vision, Touch, and the Philosophy of Perception (Cambridge: Cambridge U.P., 1977). Ernst Cassirer, The Philosophy of Enlightenment (Princeton: Princeton U.P., 1979) has suggested that Molyneux's question was the 'theoretical problem in which all the threads of the study [of psychology and epistemology] unite.' (p.108.)

82. Locke, Essay, 2.9.8.

and judgment.[83] Around the time of the Battie-Monro dispute, therefore, British philosophers were well acquainted with the distinction between sensation and perception and recognized the vital role of judgment in the latter process. There exists even a sign that shows that Monro understood the problem. Criticizing Battie for not using the terms precisely enough, Monro wrote:

> In one paragraph madness is called a deluded imagination, and in the next false perception, and perception is either confounded with, or not sufficiently distinguished from sensation; yet I cannot think these three the same; for how close soever the connection may be between sensation and perception, there is certainly a very wide difference between either of them and imagination.[84]

This says roughly what Locke and many others said: perception and sensation were different. It seems likely that Monro in his Remarks had in mind Lockean (not necessarily Locke's own) distinction between sensation and perception and between seeing and judging.

c) Sensation and perception in Continental medicine

Besides being well-known among British writers, 'Molyneux's question' crossed the Channel and enjoyed a great popularity in France. This was mainly due to Voltaire's active introduction of Locke's philosophy as an alternative to Descartes'. Moreover, Voltaire, during his exile in England (1726-28), heard of the curing of a man who was born blind performed by William Cheselden (1688-1752) in 1728, associated

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83. George Berkeley, Philosophical Works, ed. and intro. by M.R. Ayers (London: J.M. Dent and Sons, 1975), p.161; David Hume, A Treatise of Human Nature, ed. by P.H. Nidditch, (Oxford: Clarendon Press, 1978), p.112.

84. Monro, Remarks, p.9.

Cheselden's curing of a cataract with Molyneux's question, and gave an extensive exposition of the problem in his popular Elements of the Philosophy of Newton. Under Voltaire's lead, some eminent philosophes such as Diderot (1713-84), Condillac, and Buffon (1707-88) were very much interested in the problem.[85]

Voltaire went further to combine the Molyneux's problem and the nature of madness in the article 'madness' in his Philosophical Dictionary (1764). He there raised the following question:

> It may be asked how his spiritual, immortal soul, lodged in his brain, receiving all ideas very clearly and distinctly through the senses, nevertheless never judges sanely. It sees objects as the souls of Aristotle and Plato, Locke and Newton saw them. How then, receiving the perceptions experienced by the wisest, does it make of them an extravagant combination, without being able to help itself?[86]

Here Voltaire fused Locke's theory of perception and medical consideration of madness. Although the images held by the mad were exactly the same as those held by the sane, the mad could not make correct judgments about the external world: 'when the wise men saw blue, my madman saw red; when the wise men hear music, my madman hears the braying of a donkey; when they listen to a sermon, my madman thinks that he is at the theatre; when they hear yes, he hears no.' This is

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85. See Morgan, Molyneux's Question, passim.

86. Voltaire, Philosophical Dictionary, ed. and trans. by Theodore Besterman (Harmondsworth: Penguin, 1972), p.210. Michel Foucault made an excellent analysis of this article of Voltaire's in his Histoire de la folie a l'age classique, 2nd ed. (Paris: Gallimard, 1972), pp.227-31. It seems, however, a misconception of Foucault that Voltaire's representation of the problem within the mind-body dualism did not represent eighteenth-century problems of madness. As I have shown in the previous chapter, the problem of madness was strongly connected with the problem of the existence of the soul.

because, argued Voltaire, the madman cannot make a true judgment on his sensation, which is exactly what Monro said.[87] Just as those who has just recovered their sight can see perfectly but can not tell a cube from a globe, so a madman can see right, but judges wrong.

Likewise, some major Continental medical theorists were interested in the problem of the Lockean distinction between sensation and perception. This was the more the case because they found a support of dualism and a counter-evidence against materialism in the distinction. Boerhaave, Jerome Gaub and Haller were all keen to state that sensation as a material change in the body should be distinguished from perception as a mental state correlated to the material state.[88] In their attempt to reinforce the distinction between the material process and the mental one, they reached a similar distinction to Locke's, which is exemplified in the following passage of Haller's comments on Boerhaave's textbook:

> Suppose yourself to be born in America, and never to have heard a word of Latin: if now you hear me speaking in that Language you will certainly perceive no ideas from my words, notwithstanding your ears receive the same impression with my own.[89]

This is an aural version of Molyneux's blind man, so to speak.[90]

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87. There is no sign that Voltaire read Monro's work.

88. For Boerhaave's idea on the problem of mind-body dualism and interaction between them, see Wright, 'Boerhaave on Minds'; B.P.M. Schulte, 'The Concepts of Boerhaave on Psychic Function and Psychopathology,' in Boerhaave and His Time, ed. by G.A. Lindeboom (Leiden: E.J. Brill, 1970), 93-101. As for Gaub, see L.J. Rather, Mind and Body in Eighteenth-Century Medicine: a Study of Jerome Gaub's De Regime Mentis (London: The Wellcome Historical Medical Library, 1965).

89. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4, p.239. The passage cited is Haller's comment.

90. In his First Lines of Physiology, Haller distinguished perception from sensation, writing that during the time of our perceptions, the mind are

This was largely because they wanted to vindicate the existence of the immaterial substance in man. They were all the more eager to do so, because there actually existed some seeds of suspicion about their religious orthodoxy: Boerhaave was in his youth associated with Spinoza (1632-77), and La Mettrie (1709-51), bête noire materialist of the mid-century, made use of the ideas of Haller and Gaub in his notorious L'homme machine.[91] Gaub was horrified that La Mettrie incorporated into his L'homme machine his lecture on the mind and the body which La Mettrie attended: Gaub wrote that 'this made me more cautious with regard to the matter [of mind and body].'[92] Haller, to whom La Mettrie dedicated L'homme machine in a scornful manner, and whose idea of animal irritability was a vital support of La Mettrie's materialism, made public statement in Journal des Scavants in 1749 that he had never known nor corresponded with La Mettrie, had never been to his teacher, and shared none of his philosophical opinions.[93]

Hence they expressed great anxiety against materialism, and they used the distinction between sensation and perception as the evidence against materialists' claim. By drawing a sharp distinction between

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involved in the 'perception of the sensation.' Haller, First Lines of Physiology, vol.2., p.33. This passage appears only in the third Latin edition (1767) and did not appear in earlier Latin editions in 1747 and 1751. As Tissot introduced the distinction between mere sensation and mind perceiving it in his preface to Haller's Dissertation in 1755, it is likely that Haller's adding the distinction between the fourth and fifth stages might owe to Tissot's suggestion.

91. As for La Mettrie's materialist use of medical education (mainly Boerhaaveian) he got, see Aram Vartanian, La Mettrie's L'homme machine: a Study in the Origins of an Idea (Princeton: Princeton U.P., 1960). I could not avail myself of a new book on La Mettrie by K. Wellman.

92. Rather, Mind and Body in Eighteenth-Century Medicine, pp.115-22.

93. Aram Vartanian, La Mettrie's L'homme machine, p.201. See also idem, Diderot and Descartes: a Study of Scientific Naturalism (Princeton: Princeton University Press, 1953).

sensation and perception, Boerhaave insisted that Spinoza and the Epicureans were wrong in their blurring the distinction between the mind and body. He wrote that every sensible natural philosopher 'except Spinoza and the Epicureans' believed 'these changes of the sensitive organ are ... different from the ideas which they excite.' To demonstrate the difference more firmly would be, Boerhaave expected, a fatal blow to the materialists: then, 'the whole definition by Spinoza must fall to the ground.'[94]

Samuel August Tissot (1728-97), a Swiss physician and the translator of Haller's Dissertation into French, too, was worried about the association of La Mettrie's materialism and Haller's use of animal sensibility as the model of man's sensation.[95] In his preface to the French translation, Tissot claimed that animal's sensation must be different from man's perception:

> Sensation is produced the same way in one [brute] as in the other [man]: but in brute the result of this sensation is confined to a mechanical determination consequent upon it; while in man the soul perceives that sensation, this perception from the idea, and passage from the sensation to the idea is the essential character which distinguishes man from brute.[96]

Animal without the immaterial soul had mere sensation, and only man endowed with the soul could perceive it and form the idea.

Accordingly, Boerhaave and Haller incorporated the distinction

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94. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4, pp.237-40.

95. Tissot, 'preface' to Albrecht von Haller, A Dissertation on the Sensible and Irritable Parts of Animals (London: J. Nourse, 1755), xxix. The English translation was, as Temkin showed, actually a translation from Tissot's French edition, and contains a translation of Tissot's preface, which does not appear in Temkin's edition.

96. Tissot's 'preface' to Haller, Dissertation, p.xxix.

between sensation and perception into their account of madness or delirium. Following the Cartesian idea of illusion caused by a mechanical shock at the seat of the soul, Boerhaave explained the mechanism of what he called 'primary imagination' or simple illusion as follows:

> For example, I see an object existing without me, a flame; ... But another person who press his eye with his finger, will also believe that he sees fiery sparks, when there is no such real cause existing without ...; and this idea is represented as strongly and clearly to the mind when diseased as if it arose from fire existing without and placed before the eyes.[97]

Seeing fire when struck on the eyes was, however, not sufficient to explain madness, for 'these ideas are neither strong nor easily lead the mind into error... [and] it will be found that the cause exciting the idea of a rainbow is within him.'[98] So long as the mind could tell illusion from reality, it could not be called mad.

An optical illusion approached more closely to madness when the false idea persuaded the mind of the existence of the external object the idea stood for:

> If now there is a strong remembrance of a similar idea excited formerly by the action of some external object, and at the same time the present idea arising from the internal disposition be vivid, there follows a strong persuasion in the mind, that the cause exciting the idea is then present without the body; and this is called the secondary imagination.[99]

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97. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4., p.258.

98. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4, p.258.

99. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4, pp.258-9. The false image presented to the common sensory, too, will persuade the mind

In the case of the 'secondary' imagination, argued Boerhaave, one was obliged to believe that he or she actually saw an external object, and 'if we believe the existence of it, then we are properly mad.' Madness, for Boerhaave, consisted in being persuaded by a false image, not simply having it. And when the mind that 'perceives such an idea, and believes it to be true [my emphasis]' was determined to act at its own will, there would follow the extravagant actions of the madman: in such an case, 'we usually call such people raving mad.'[100]

Special attention should be paid here. Boerhaave and Haller said that madness consisted in the mind being passively persuaded by the illusion. The crucial step from a mere illusion to madness entirely lay in the illusion and its bodily circumstances, not in the perceiving mind itself. Mind was persuaded, because the illusion was strong enough, because it was provided from memory or because it took place in sensorium commune.[101]

d) Passive madness and active madness

Battie's Treatise followed quite closely to the Boerhaavian and/or Hallerian 'epistemological' model of madness, with mind playing the passive role. Besides his definition of madness as deluded imagination caused by delusive sensation, which said that madness was essentially a production of false idea due to disorders in nerves and brains, Battie's debt to the two Continental major medical theorists is clear in his illustration of madness:

to instance in a very common accident, the eye that is violently

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into believing its reality. See ibid, p.267.

100. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.4, p.259.

101. Haller, too adopted the model of passive mind being persuaded into believing the false image. See Haller, First Lines, vol.2, pp.35-37.

> struck immediately sees flame flash before it; which idea of fire presented to the imagination plainly shews that those material particles of the optic nerve are affected by such blow exactly in the same manner, as they are when real fire acts upon the eye of a man awake and in his senses with force sufficient to provoke his attention.[102]

Although this served as a prototype of madness, Battie tacitly conceded that the simple model of an illusion or 'delusive sensation' was not entirely identical with madness. He argued that something more must be at work in the true cases of madness:

> Suppose that the idea of flame really excited by a blow is by him referred to an house on fire, or the idea of sound excited by the pulsation of vessels, etc. is referred to a musical instrument, which is not really played upon; the man who is so mistaken, and who cannot be set right either upon his own recollection or the information of those about him, is in the apprehension of all sober person a Lunatic.[103]

In this passage Battie virtually admitted that false sensation was not in itself madness, but erroneous reference of the illusion to an external object was the crucial step toward the disease.

Strictly speaking, therefore, Battie's attribution of madness solely to 'delusive sensation' over-simplified his own point quoted just above, and did not express what he wanted to say in his comparison of simple

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102. Battie, Treatise., p.42. I think that Battie was very likely to have read Boerhaave's or Haller's use of seeing fire as the model of madness. Although, as I showed in the previous chapters, this model had a long history from Descartes, Boyle, Hobbes, the most likely source for Battie is Boerhaave and Haller.

103. Battie, Treatise, p.43.

imagination and real madness. For an illusion to become madness, Battie himself admitted, another step was necessary, which Locke would have called wrong judgment of the idea, and which Monro called a 'vitiated judgment.' It turns out, then, Battie's account of madness in the passages cited above was not very much different from Boerhaave's and Haller's, and even Monro's. All accounts of madness included Lockean 'judgment' as the crucial aspect of madness. In another part of his Treatise, following perhaps Boerhaave and Haller, Battie said that 'that man and that man alone is properly mad, who is fully and unalterably persuaded [my emphasis] of the existence or of the appearance of anything, which either does not exist or does not actually appear to him.'[104] This erroneous persuasion is hardly different from Monro's 'vitiated judgment,' for 'being persuaded' signified the result of making judgment rather than a mere state of having an mental image.

Here, however, the difference in terminology and in the stress was of great importance. Note that Battie's madman was 'persuaded' and Monro's 'judged wrong.' One is passive in his madness, the other actively commits mistakes. This is mainly because Battie's main concern in his Treatise was, as I have already discussed, to establish an account of madness modelled after Haller's experiments, which were concerned with the physiological process of sensation, rather than the mental process of judgment. In order to base the account of madness on the physiology of delusive sensation, it was necessary to minimize, or even ignore, the gap between Lockean perception and sensation, between madness and illusion, and his own 'false perception' and 'delusive sensation.' Once a delusive sensation takes place, therefore, Battie's madman can do nothing but to be persuaded by it.

Monro drove a sharp wedge into this narrow gap between false perception and delusive sensation. ('How close soever the connection may be between sensation and perception, there is certainly a very wide

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104. Battie, Treatise, p.6.

difference between either of them and imagination.') Where Battie saw an almost automatic erroneous persuasion, Monro found that the mad mind was actively making a wrong judgment. Monro went even further to claim, as Voltaire was to do several years after, in some cases of madness only judgment was vitiated with imagination and sensation unaffected.

Thus considered, it does not make sense to paint Battie's and Monro's definitions of madness as a progressive theory versus a reactionary one. Both Battie and Monro thought madness consisted in having erroneous understanding about the external world; both shared the common basis of eighteenth-century philosophical and medical account of true and false perceptions; both showed concern in distinguishing mere sensation from referring it to the external object. They were both thinking, in short, within the framework where eighteenth-century Lockean philosophy met medical accounts of sensation, perception and madness.

Conclusion: a historical assessment of Battie and Monro

a) Did Monro anticipate what was to come?

Battie was, as I have suggested, loyal to Boerhaaveian and Hallerian models of madness. His characterization of madness with false sensation; his use of optical illusion as an explanatory model of madness; his interest in physiology of nerves and of sensation; and, most importantly, his formulation of the passive mind. These show that he followed the two major eighteenth-century medical theorists' (and, ultimately, Descartes's) model of madness as illusion. Monro, on the other hand, seems to have made a sort of silent departure, although not a determined one, from the Cartesian model of madness as an illusion. Yes, says Monro, some madness involved illusion, but what is more significant was not illusion itself, but what the mind makes of the illusion, and indeed, some cases of madness did not accompany illusion at all. Monro claimed that madness consisted in something other than illusion, which was potentially a

significant departure from the Cartesian model within which many eighteenth-century physicians (Willis, Pitcairn, Mead, Battie, Boerhaave, and Haller included) were thinking.

Monro was to find an ally very soon. Four years after the dispute, Battie published Aphorismi de Cognoscendis et Curandis Morbis, which contained two chapters on mania and melancholia. Next year, a review of the book which included detailed criticism of Battie's definition of madness in the book appeared in The Gentleman's Magazine, entitled 'To Dr. Battie' and signed 'T.I.'[105] Incidentally, this shows that there was a growing interest in medico-theoretical issues on madness, probably due to the Battie-Monro debate itself.

After criticizing what the author considered as incoherent in Battie's account of madness in the book, the author started to reject Battie's definition of madness and to present his own.[106] Summarizing that Battie wanted to regard 'deluded imagination' ('phantasmata ficta') as crucial to madness, the author opposed that the cause of our error must not be sought in the disorder of the faculty of image-making. The author argued that we made errors or mis-perception because 'we make very erroneous judgments concerning [sensation].'[107] The cause of an error must be in our judgment.

The author proceeded to draw an analogy between an erroneous judgment and madness, for, he said, both were concerned with our failure

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105. 'To Dr. Battie,' Gentleman's Magazine, 1763, **33**: 20-21. There is no clue to the authorship of the article. Internal evidence seems to suggest that the author is competent in philosophy, especially that of Scottish Common Sense school.

106. Here, the author said that Battie's account of madness as pravum judicium (which is different from one presented in his Treatise) and another account of his, fantasmata ficta, (which, the author says, derived from Locke's Essay, and which is much the same with Battie's earlier definition, 'deluded imagination.') did not go together. It seems that Battie changed his mind to incorporate Monro's 'vitiated judgment' into his new definition of madness.

107. 'To Dr. Battie,' 20.

in decoding signs. Madness, he argued, consists in the mis-connection of signifiants to signifiés, rather than in the disordered image:

> The phenomena thus connected may be said to form a chain, the several distinct links whereby are perceived by madmen as well as others; but here lies the difference: madmen do not perceive their concatenation. They see the signs, but they do not know what is signified by them.[108]

While Battie characterized madness by false imagination, the reviewer took the same position as Monro's and claimed that madmen's images were accurate and they were mad because they could not judge them correctly. Both the reviewer and Monro expressed discontent directly with Battie's characterizing madness by illusion; both argued that in madness what is vital was not the illusion, for simple illusion was not sufficient to make madness: both believed that the crucial thing was the mind's action on the received images, rather than the images themselves. The reviewer's conclusion was just identical with Monro's point: 'a man is not mad for perceiving this or that species, but for making a wrong judgment concerning it, or, in other word, for keeping deceived by it.'[109]

As the century went one, it seems that Monro saw his day. The revision of the Cartesian illusion model of madness and the recasting the disease into more mental and psychological one became evident later in the century, and the shift from Battie-like definitions to Monro-like ones was the vital part of the revision. Late eighteenth-century nosologists, some of whom I shall look at in detail in the next chapter, paid more and

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108. 'To Dr. Battie,' 21. The author rendered the contrast clearer by twisting the example of an optical illusion: 'Suppose a man, through a disorder in the optic organs, perceiveth that phenomenon which is called lightening; this man, if he consideres the species as connected with a distemper in the eye, is not thought mad; but if he take it to be a sign of thunder, rain, etc., we do not hesitate him fit for Bedlam.'

109. 'To Dr. Battie,' 21.

more attention to the faculty of judgment in their explaining madness. Boissier de Sauvages, William Cullen, Thomas Arnold, and many others were departing from the Cartesian characterization of madness as illusion: Sauvages spelled out that mania and melancholia were the diseases of judgment; Cullen thought that affection of judgment, rather than hallucination, was the most important single symptom of madness; Thomas Arnold's 'notional insanity' was saying just what Monro had said, arguing that the species of madness involved no disorder in illusion but disorder in judgment.[110] They were, so to speak, Monro's allies, in the sense that they took wrong judgment as the most important symptom of madness.

The glance given above suggests that the understanding of Battie-Monro dispute as the crash between the progressive Battie and the reactionary Monro can be even inverted. Although it might be terribly wrong to paint Monro as a determined critic of the Cartesian illusion model, Monro-like understanding of madness was at the centre of the revision of the psychiatric theories in late eighteenth and early nineteenth century. It seems safe to say that Monro anticipated the revision to come.

b) Battie's contribution

Partly because I want to counterbalance the present futuristic understanding of Battie, I have been trying to put Battie, especially the theoretical aspects of his Treatise, in the medical and philosophical context of his period. In doing so, I have maintained that Boerhaave, Haller, and Lockean philosophy were vital keys to the book. I am, however, not denying that Battie's Treatise as a whole was an important breakthrough and anticipated what was to come. As Hunter and Macalpine, Doerner, and Porter have argued, Battie started a lot of things, e.g. creating the consciousness that treatment of the mad is an independent branch in medicine, clinical instruction, optimism about the cure of madness.

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110. See chapter six below.

Among them, one of the most important and the most tangible in Battie's Treatise was, as many historians have pointed out, the attempt to frame psychiatric discourse around psychiatric institutions. Battie's Treatise contains a chapter on 'The Regimen and Cure of Madness.'[111] There he maintained that 'management did much more than medicine' in madness, perhaps acknowledging his debt to Richard Mead's Medical Precepts and Cautions.[112] Mead's 'management' of the insane was, as Jackson pointed out, based on 'six-things non-naturals' and it included such instructions which seem to have anticipate moral management in the early nineteenth century: 'to inculcate notions directly contrary to those with which they were long possessed,' 'rest and intermission of labour are proper to be ordered,' 'bodily exercise is never to be neglected,' etc.[113]

Battie's management is not drastically different in its content: controlling appetite, digestion, air, and exercises, and employing the mad.[114] As the physician to St. Luke's, Battie however started a new approach, placing management firmly and almost exclusively within an institution especially designed to house the mad.[115] Indeed, the

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111. Battie, Treatise, pp.68-77.

112. Battie, Treatise, p.68. Richard Mead, in his Medical Precepts and Cautions, put down 'some rules for management of mad-folks, than which nothing conduces more to their cure.' See The Medical Works of Richard Mead, 2 vols. (London: C. Hitch, et al., 1762), vol.2, p.492. Probably Battie had Mead's this passage in his mind when he wrote the phrase cited above as the 'saying of very eminent practitioner.' Monro, however, interpreted this as the word of James Monro, his father. (Remarks, p.35.)

113. Mead, Works, vol.2, pp.493-94; Jackson, 'Introduction' to Pargeter, Observations on Maniacal Disorders.

114. Battie, Treatise, p.69.

115. As for the importance of the psychiatric institutions (both public and private) in eighteenth-century psychiatry, see Porter, Mind-forg'd Manacles, pp.169-228; idem, 'Madness and Its Institutions,' in Medicine in Society: Historical Essays, ed. by Andrew Wear (Cambridge: Cambridge U.P., 1992), 277-301.

institution itself cures madness: 'confinement alone is oftentimes sufficient, but always so necessary, that without it every method hitherto devised for the cure of madness would be ineffectual.'[116] The patients should be removed from all objects that excites their mind: hence friends' visits, servants' attendance, let alone curious visits for pastime, should be strictly forbidden.[117] For the cure of madness, claimed Battie, a well-managed psychiatric hospital with its carefully designed apparatus was of absolute necessity.

Here it seems that Battie formulated what was already in the air. The stress on management was one of few points Monro agreed to: confinement was 'certainly of the utmost service, and has restored many without the assistance of medicine.'[118] People welcomed the idea, too: Tobias Smollett, in the Critical Review, wrote that Battie's and Monro's discussion on management of the insane was the most useful part of the dispute.[119] As the century went on, the management of the insane within institutions such as hospitals and madhouses became a fashionable topic. With his background as a madhouse keeper, Thomas Arnold emphasized that besides medication and regimen, curing insanity needs 'a particular management which cannot easily be accomplished without an appropriate apparatus, a house adapted to the purpose, and servants who have been properly instructed.' In his Dissertation on the Influence of the Passions (1788), William Falconer (1744-1824) pushed Battie's argument further and proposed paying attention to the buildings of the hospital: a madman 'should be placed in a chamber of a moderate size, with the walls smooth, uniform, and regular, and not ornamented with variety of colours or paintings, as these are apt to distract the mind,' with minute instructions

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116. Battie, Treatise, p.68.

117. Battie, Treatise, pp.68-9.

118. Monro, Remarks, p.37.

119. 'Review of Monro's Remarks,' Critical Review, 1757, 5: 224.

about things like bed-clothes and windows.[120] His proposals were highly regarded: Falconer earned the first Fothergillian Medal instituted by the Medical Society of London and the work went through three editions in next eight years.[121]

The minute instructions on the management of the insane in hospitals and madhouses were probably a part of general rise of interest in management in institutions. As Michel Foucault showed in his Discipline and Punish, from late eighteenth century, there appeared a new configuration of the practice of punishing criminals, treating the ill, educating the young, managing soldiers, and institutionalizing the mad. The focus of discipline shifted into the management in institutions and the minute rules followed there; detailed knowledge about the effect of the institutional discipline, by which the inmates' minds were to be moulded into a desirable subject, became a part of sciences like criminology, medicine, educational theory, and psychiatry.[122] What happened in late eighteenth-century psychiatric writings seems to be in accordance with the birth of the microphysics of power described by Foucault. The discourse upon madness from Battie's time started to encompass a new topic of managing the mad both more efficiently and more humanely. How to design a proper circumstance for their confinement, how to make conversation with them, how they should be employed, what kind of persons were suitable for a keeper, how to device a machine for their cure, where to build the hospital--all these topics formed a vital part of the psychiatry during the age of its making. If the marriage of the discourse on the mental diseases and the management in the institution was the

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120. Thomas Arnold, Observations, p.9; William Falconer, A Dissertation on the Influence of the Passions upon Disorders of the Body, 2nd ed. (London: C. Dilly, 1791), pp.71-73.

121. Hunter and Macalpine, Three Hundred Years, p.507.

122. Michel Foucault, Discipline and Punish: the Birth of the Prison, trans. by Alan Sheridan (London: Allen Lane, 1977: Harmondsworth: Penguin, 1979).

hallmark of nineteenth-century psychiatry, one can say that Battie's Treatise anticipated the century to come, or, it was even the first important formulation of the basic structure of the new psychiatric knowledge centred on the institutions for the mad.

Chapter Six

The Birth of Psychiatry?:

Nosology and 'The Natural History of the Human Mind'

Introduction

a) 'A disease everybody knows': the problem of defining madness

In the previous chapter I looked mainly at the context of the Battie-Monro dispute over the definition of madness. In doing so, I may have made it sound as if defining madness and drawing a clear distinction between sanity and insanity and between madness and other diseases had always been an integral part of the medical discourse about madness. This was actually not the case. Physicians around Battie's time do not seem to have been particularly interested in 'defining' madness. Many medical writers simply repeated the centuries-old definition, 'delirium without fever.' And the term 'delirium' almost always meant the production of a false image that did not correspond to the external world. In his Observations on the Nature, Kinds, Causes and Prevention of Insanity (1782 & 86), Thomas Arnold (1742-1816) observed that physicians' definitions of delirium had been essentially the same from the time of Galen up to the mid-eighteenth century.[1] We must not, of course, take this assessment by Arnold uncritically, but Arnold was not exaggerating very much. In contrast to the monotonous repetition of 'delirium without fever' in the early- and mid-century, in the late eighteenth century a host of physicians including Arnold were eager to probe into the problem of

1. Thomas Arnold, Observations on the Nature, Kinds, Causes and Prevention of Insanity, 2nd ed., 2 vols. (London: Phillips, 1806), pp.30-43. There Arnold counts more than twenty medical writers, Sennert, Boerhaave and Gaub included, as those who gave very similar definition to delirium. The first edition seems to be very rare, and I have not yet found a copy of it.

defining madness, coming up with its definitions, of vastly increased complexity and diversity.

Some earlier writers even stated that a definition of madness was useless, not because it was difficult, but because madness was too obvious a disease to invest serious effort in defining. In his Treatise of Disease in General (1741), Charles Perry (1698-1770) gave a brief definition to each disease and explained its causes. When he came to explaining madness, however, he omitted its definition and went directly to its causes, writing madness 'is so well understood that it needs no particular description.'[2] In 1769, William Buchan (1729-1805), a Scottish physician, was not satisfied at the common definition of madness as 'delirium without fever,' and even admitted that the definition was inaccurate, but he wrote 'there is no great occasion to be solicitous about the definition of a disease which every body knows'; John Trusler (1735-1820), a divine-turned-doctor, considered it reasonable to omit writing about the symptoms of melancholy and mania, as they are 'sufficiently known when they happen.'[3] These remarks explain the apparent absence of physician's interest in defining madness: what was the use of defining madness when everybody could recognize it almost intuitively?

Here lay a great paradox. Did not many physicians confess the enormous difficulty in, say, drawing a distinction between madness and hysteria or between madness and simple light-headedness? Were they not

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2. Charles Perry, A Treatise of Diseases in General, 2 vols. (London: T. Woodward et al., 1741), vol.1, p.53.

3. William Buchan, Domestic Medicine: or the Family Physician (Edinburgh: Balfour et al., 1769), p.516; John Trusler, The Physical Friend: Pointing Out the Symptoms of Every Distemper Incident to Man (London: for the Author, 1776), p.51. As for Buchan, see Christopher Lawrence, 'William Buchan: Medicine Laid Open,' Med.Hist., 1975, 19: 20-35. DNB says that Trusler, a London cleric, studied medicine under Hunter and Fordyce and later at Leiden, apparently without taking an MD degree.

overwhelmed at the many faces of madness?[4] Nevertheless, they still believed that everyone could tell madness when it happened and that it was not their business to define it. Unlike the somatic etiology and therapeutics of madness, definition of madness was not a genuine part of the medical discourse during the early eighteenth century. It was thought to be too obvious, although they did not know what it was actually.

Battie grasped the very problem in the structure of the psychiatric knowledge at his time. At the very beginning of his A Treatise on Madness, he wrote that the present miserable state of the medical knowledge on madness was due to the absence of any satisfactory definition of madness. To amend the disgrace, he thought it necessary to 'fix a clear and determinate meaning to the word "madness."' The definition was to follow two principles. First, it should not include any recourse to the etiology of madness, since defining a disease by its supposed causes was precarious. The successful definition should depend solely on the 'essential' symptom of madness which never fails to attend it. The tactics involved a search into the state of the mad mind, rather than in the pathology of the body. Secondly, the definition was to differentiate madness from every other disease that was not madness sui generis: 'No definition of madness can be safe, which does not determine what it is not, as well as what it is.'[5] The two principles Battie adopted suggest that he was anticipating the project of nosology, a movement which was soon to flourish. Although Battie spent many more pages in the subsequent chapters explaining the Hallerian experimental physiology of

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4. For the eighteenth-century protean nature of madness, see Roy Porter, Mind-forg'd Manacles: a History of Madness in England from the Restoration to the Regency (London: The Athlone Press, 1987), pp.15-18.

5. William Battie, A Treatise on Madness (1758), with John Monro, Remarks on Dr. Battie's Treatise on Madness (1758), introduced & annotated by Richard Hunter and Ida MacAlpine (London: Dawsons, 1962), pp.3-4.

nerves and sensation, he imposed upon himself the 'nosological' task of defining madness, too.[6]

The status of this task was, however, still perceived as ambiguous by Battie himself. He explained what he would do to define madness as follows:

> we must for sometime at least quit the schools of philosophy, and content ourselves with a vulgar apprehension of things [my emphasis].[7]

Battie's definition of madness still belonged to the domain of commonplace or 'vulgar' knowledge, while the wording of the cited passage suggests that Battie regarded the rest of the book as a more genuine part of learned discourse ('the school of philosophy'). Although unlike Perry, Buchan, and Trusler, Battie thought a successful psychiatric discourse should contain a nosographical description of the crucial mental symptom of madness as well as its somatic pathology, the former was not yet an integral and genuine part of the learning: it was, so to speak, a digression into 'vulgar' discourse.

Within a few decades after Battie's Treatise, the landscape of the psychiatric discourse changed drastically, to incorporate the domain of the definition of madness, to include a far more careful look at its mental symptoms, to employ a new type of vocabulary to describe them, and to transform the 'vulgar' knowledge into a learned one. The aim of the chapter is to trace the shift and to examine the emergence of the new pattern in the construction of psychiatric discourse.

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6. There is no clue in his text about the source of Battie's nosological idea. It is probable that Battie developed his principles in defining madness, following Boissier de Sauvages' works. Battie and Sauvages, however, were radically different from each other in their definitions of mental disorders, as I will shortly see. Above all, Battie did not adopt the botanical model of arrangement into genera and species.

7. Battie, Treatise, p.4.

b) Problems: nosology and the philosophy of the mind

As I have just suggested, nosology was one of the new keys. The 1760s witnessed a rush of schemes of general nosology both in Britain and on the Continent: Nosologia Methodica (1763) by Boissier de Sauvages (1706-1767), a professor of medicine and botany at Montpellier; Genera Morborum (1763) by Carl von Linné (1707-1778), the great Swede botanist; Synopsis Nosologiae Methodicae (1769) by William Cullen (1710-1790), an eminent professor of medicine at Edinburgh; Systema Morborum Symptomaticum (1771) by John Baptist Michael von Sagar (1702-78), and A Methodical Introduction to the Theory and Practice of Physick (1772) by David MacBride (1726-78), a private lecturer of medicine in Dublin, to name but a few.[8] From a slightly later period, many medical monographs on madness adopted the nosological method and arranged mental diseases into various genera and species, including Observations by Thomas Arnold; Della Pazzia in Genere, e in Specie (1793 & 94) by Vincenzo Chiarugi (1759-1820), a physician and reformer of the asylum at Tuscany; and most notably, Traité médico-philosophique sur l'aliénation mentale ou la manie (1800) by Philippe Pinel (1745-1826), who also published a general nosology, Nosographie philosophique (1799).[9] And the pattern of

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8. As for the general history of late eighteenth-century nosology, see Lester King, The Medical World of the Eighteenth Century (Chicago: The University of Chicago Press, 1958), pp.193-226; Knud Faber, 'Nosography in Modern Internal Medicine,' Annals of Medical History, 1922, **4**: 1-63; Esther Fischer-Homberger, 'Eighteenth-Century Nosology and Its Survivors,' Med.Hist., 1970, **14**: 397-403. The most astute, if aprioristic, assessment of eighteenth-century nosology remains Michel Foucault, The Birth of the Clinic, trans. by A.M. Sheridan (London: Tavistock Publications, 1973; rept. Routledge: 1989), pp.3-21. For historical contexualization of Cullen's nosology, see Christopher J. Lawrence, 'Medicine as Culture: Edinburgh and the Scottish Enlightenment,' University College London, Ph.D., 1984, pp.352-59.

9. Arnold, Observations; Vincenzo Chiarugi, On Insanity and Its Classification, trans. and intro. by George Mora (Canton, Mass.: Science History Publications, 1987); Philippe Pinel, Traité médico-philosophique sur l'aliénation mentale ou la manie (Paris: Richard, Caille et Ravier

psychiatric discourse established in the works can be found in medical writings which were not nosological in themselves, like James Makittrick Adair's (1728-1802) A Philosophical and Medical Sketch of the Natural History of the Human Body and Mind (1787) and Alexander Crichton's (1763-1856) An Inquiry into the Nature and Origin of Mental Derangement (1798).[10]

In those works, which were more or less under the influence of late-century nosology, a radical transformation of psychiatric discourse occurred. The most visible and probably the most important aspect of the recasting was the replacing of the simple and bodily Cartesian model of madness as illusion with more complex and psychological models, in competition with each other. Instead of the single model of madness, physicians in the late eighteenth century started to think there were several different species of madness, and they differed from each other. A lot of physicians started to compare madness with moral folly, improper behaviour, mis-association of ideas, rather than a simple hallucination. In doing so, they did not adopt the scheme of the passive mind persuaded by the bodily impulse, but gave the mind more active role in being mad.

Closely intertwined with the project of reforming the medical understanding of madness, there took place the employment of the new vocabulary to describe madness: philosophy of the human mind, more or less in the shadow of Locke. As we have seen above, the positive

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Libraires, 1801; rept. with introduction by François Azouvi, Genève: Édition Slatkin, 1980), English Translation, A Treatise on Insanity, trans. by D.D. Davis (Sheffield: W. Todd, 1806); idem, Nosographie philosophique: ou la méthode de l'analyse appliqué a la médecine, 2nd ed. (Paris: J.A. Brosson, 1802). As for the classification of madness and nervous diseases in this period, see Michel Foucault, Histoire de la folie à l'âge classique (Paris: Éditions Gallimard, 1972), pp.193-225; W. Riese, 'History and Principles of Classification of Nervous Diseases,' Bull.Hist.Med., 1945, **18**: 465-512.

10. James Makittrick Adair, A Philosophical and Medical Sketch of the Natural History of the Human Body and Mind (Bath: R. Cruttwell, 1787); Alexander Crichton, An Inquiry into the Nature and Origin of Mental Derangement, 2 vols. (London: T. Cadell et al., 1798).

influence of Locke was almost absent in early-century English medical writings on madness, and there is little room for the philosophy of the mind per se where the role of the mind in madness was minimal. In contrast, the influence of philosophy on the psychiatric writings in the late eighteenth century was concrete, visible and direct. As I shall examine in greater detail below, Boissier de Sauvages' account of madness was clearly modelled after the philosophy of Christian Wolff (1679-1754); Cullen's was based on David Hume's (1711-1776); Arnold adopted Locke's as the fundamental framework of his classification of madness; Adair cited Berkeley; and Crichton acknowledged 'much assistance' from Locke and others.

I cannot, of course, describe the whole picture of the seemingly European-wide transformation of the structure of the psychiatric discourse.[11] Instead, I will be selective, and highlight two major writers, namely, Sauvages and Cullen.

Among the general nosological schemes, that of Sauvages was the earliest. Sauvages is the first physician who published a nosological work, Nouvelles classes de maladies as early as the early 1730s, and his more voluminous work, Nosologia Methodica (1763), was an enormous success and the major inspiration to many late-century nosological writers.[12] In the latter book, Sauvages drastically restructured medical understanding of diseases of the mind. I will first look at the challenge of Sauvages against the essentially Cartesian model of madness then prevalent and against its underlying assumptions. A close examination of Sauvages' work

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11. Dora Weiner has shown that in late-century England, Germany, Spain, and France, there was a simultaneous rise of a new psychiatry, which was to lead to Pinel. Dora B. Weiner, 'The Origins of Psychiatry: Pinel or the Zeitgeist?' in Zusammenhang Festschrift für Marielene Putscher, eds. by Otto Baur and Otto Glandien (Köln: Wienand Verlag, 1984), 617-31.

12. François Boissier de Sauvages, Nouvelles classes de maladies (Avignon: d'Avanville, 1732[?]); idem, Nosologie méthodique, dans laquelle les maladies sont rangées par classes... 3 vols. (Paris: Hérissant, 1770-1771).

will throw much light on the innovations in British medical writings on madness in the late eighteenth century.

Then I will return to Britain to examine Cullen's understanding of madness. Only a very cursory look at the history of psychiatry is enough to see Cullen's influence. So many 'Pinels' had strong connections with him or his work. Benjamin Rush (1745-1813), 'an American Pinel,' attended 'the invaluable lectures of Dr. Cullen's' at Edinburgh; Chiarugi, 'an Italian Pinel,' made heavy use of Cullen's account of madness in his work; and Philippe, 'the genuine' Pinel, translated Cullen's First Lines of the Practice of Physic into French in 1785.[13] One can easily suppose Cullen's 'influence' upon psychiatry in the early nineteenth century. I would like, however, to look at Cullen from another direction, namely in the context of his response to Sauvages and his challenge to Boerhaavean medicine. The context of the Scottish Enlightenment will be looked at, too, for Cullen's fusion of medical and philosophical discourses seems to have been a product of the Scottish attempt to forge a new type of knowledge about the human mind.[14]

The third and concluding section will look briefly at the crystallization of the new formulation of the medical discourse on madness started by Sauvages and Cullen, in some selected English medical writings

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13. For Benjamin Rush, see Hunter and MacAlpine, Three Hundred Years, pp.662-71. Chiarugi, On Insanity and Its Classification, 'Introduction'; William Cullen, Institutions de médecine pratique, traduites sur la quatrième et dernière éditions anglais de M. Cullen, 2 vols., trans. by P. Pinel (Paris: Duplain, 1785).

14. The fullest account of Cullen's Scottish Enlightenment background is Lawrence, 'Medicine as Culture,' pp.312-416. See also idem, 'The Nervous System and Society in the Scottish Enlightenment,' in Natural Order: Historical Studies of Scientific Culture, eds. by Barry Barnes and Steven Shapin (Beverly Hills, California: Sage Publications, 1979), 19-40. Some constructive criticisms against Lawrence's argument are found in John P. Wright, 'Metaphysics and Physiology: Mind, Body, and the Animal Economy in Eighteenth-Century Scotland,' in Studies in the Philosophy of the Scottish Enlightenment, ed. by M.A. Stewart (Oxford: Clarendon Press, 1990), 251-301.

in late eighteenth century, like Arnold's Observations, Adair's Philosophical and Medical Sketch, and Crichton's Inquiry. Despite disagreement between them (especially, Arnold and Crichton), they shared the new pattern of psychiatric discourse pioneered by Sauvages and Cullen.[15] By looking at the works of those who were more or less in the shadow of Cullen and Edinburgh medicine, I would like to assess some aspects of the transformation of the psychiatric knowledge in the late eighteenth century.

Boissier de Sauvages' Challenge: a Teleological Model of Madness

a) Young Sauvages and the Nouvelles classes

Boissier de Sauvages' first book (published anonymously) was Nouvelles classes de maladies [1732].[16] It has often been described as the first of several nosological works which followed the recommendation of Sydenham to classify diseases 'with the same care which we see

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15. Crichton's Inquiry criticized the first edition of Arnold's Observations and the second edition of Arnold's Observations seems to contain the defence. See Crichton, An Inquiry, vol.1, xix-xx; Arnold, Observations, vol.1, xvii.

16. The exact publication date of this work has not yet been specified. Fredrik Berg wrote that it was published sometime between 1731 and 1734. See Fredrik Berg, 'Linné et Sauvages: les rapports entre leurs systèmes nosologiques,' Lychnos, 1956, **16**: 31-54. See also Lester King, 'Boissier de Sauvages and 18th-Century Nosology,' Bull.Hist.Med., 1966, **46**: 43-51. There is no full modern biography of Sauvages. Useful studies include: Louis Dulieu, 'François Boissier de Sauvages (1706-1767),' Revue d'histoire des sciences et de leurs applications, 1969, **22**: 303-22; Julian Martin, 'Sauvages's Nosology: Medical Enlightenment in Montpellier,' in The Medical Enlightenment of the Eighteenth Century, eds. by Andrew Cunningham and Roger French, (Cambridge: Cambridge U.P., 1990), 111-37.

exhibited by botanists in their phytologies.'[17] As Julian Martin has shown, the work was a product of the mixture of the strong botanical tradition of Montpellier and the Baconian attempt to reform medicine which was influential at Montpellier around Sauvages' time.[18] Sauvages imbibed the systematical method of classifying plants of the celebrated Joseph Tournefort (1656-1708) via François Chicoyneau (1672-1752), the Professor of Botany at Montpellier, to whose chair Sauvages succeeded in 1741 and to whom he dedicated his Nouvelles classes.[19] Giorgio Baglivi (1668-1707), to whom Sauvages expressed debt in Nouvelles classes and his later work, Nosologia Methodica, proposed a Baconian and Sydenhamian reformation of medicine by accumulating the 'histories' of diseases in his De Praxi Medica (1696).[20] Another complex undercurrent of the work

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17. See Thomas Sydenham, 'Preface' in Observationes Medicae, translated by R.G. Latham, in Concepts of Health and Diseases, eds. by A.L. Caplan et al. (Massachusetts: Addison-Wesley Pub. Co., 1981), 145-55; Faber, 'Nosography in Modern Internal Medicine'; King, The Medical World of the Eighteenth Century, pp.197-98. Roger French shows that the project to arrange medical aphorisms in the botanical manner by Johannes de Gorter, the professor of medicine at Harderwijk, was earlier than Sauvages' Nouvelles classes by five years or so. See Roger K. French, 'Sickness and the Soul: Stahl, Hoffmann and Sauvages on Pathology,' in The Medical Enlightenment of the Eighteenth Century, eds. by Cunningham and French, 88-110.

18. Julian Martin, 'Sauvages's Nosology.' As for the history of the Medical School at Montpellier, see Louis Dulieu, La Médecine à Montpellier: L'époque classique. Première partie (Avignon: Presses Universelles, 1983); Colin Jones, 'Montpellier Medical Students and the Medicalization of Eighteenth-Century France,' in Problems and Methods in the History of Medicine, eds. by Roy Porter and Andrew Wear (London: Croom Helm, 1987), 57-80.

19. Dulieu, 'Sauvages,' 306; Martin, 'Sauvages's Nosology,' 113. As for Tournefort and his debate with John Ray, the English botanist, see Phillip Sloan, 'John Locke, John Ray, and the Problem of the Natural System,' Jour.Hist.Bio., 1972, 5: 1-53.

20. Martin, 'Sauvages's Nosology,' 115-18; Giorgio Baglivi, The Practice of Physick, Reduc'd to the Ancient Way of Observations (London: A. Bell, et al., 1704).

is that Sauvages tried to accommodate in the book two rival medical schools: mechanism and animism. While admitting the benefit medical theory enjoyed from the mechanical and mathematical medicine of Boerhaave, Bellini, Pitcairne, and others, Sauvages admired Georg Ernst Stahl (1659-1734) and his disciples, too, for their attempt to reform medical practice by giving more exact histories of diseases after the model of Hippocrates.[21]

In his ambitious book, Sauvages explains his method of classification. He rejected three previous principles: alphabetical arrangement, etiological classification, and classification by their anatomical seats, for an alphabetical arrangement did not reflect the true order of the nature of diseases, an etiological one was not useful as it supposed the reader to be familiar with the system of physiology and pathology of the author, and an anatomical one was insufficient because some diseases changed their seats. Instead, he claimed that a satisfactory classification should be based solely on the symptoms of diseases that constantly accompany them.[22] The symptom that always accompanies the disease was called the 'character' (following the botanical phrase), and that constituted the definition of the disease.

Following the rule, Sauvages divided whole of maladies into ten classes. Class six was 'maladies spirituelles.'[23] The uniqueness of the

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21. Sauvages, Nouvelles classes, ii-iii. Sauvages' debt to mechanical medicine is mentioned in Lester S. King, 'Boissier de Sauvages and 18th-Century Nosology.' Sauvages' interest in mathematical medicine is exemplified by his French translation of Stephen Hales' Vegetable Statistics in 1744. As for Sauvages' animism, see Roger French, 'Sauvages, Whytt and the Motion of the Heart: Aspects of Eighteenth Century Animism,' Clio Medica, 1972, 7: 35-54; idem, 'Sickness and the Soul.'

22. Sauvages, Nouvelles classes, ix-x. Here Sauvages listed previous schemes in classifying diseases: Manget as a proponent of the alphabetical one, Juncker, Boerhaave and Nenter as those of the etiological, Sennert and Riviere as those of the anatomical.

23. Sauvages, Nouvelles classes, pp.288-322.

class was well recognized, and Sauvages acknowledged that one needed different methods to study that class:

> The character of this class is not recognized by external senses, as those of the other classes, but by internal senses and the notion of delirium, of disordered imagination, and of disordered appetite. And as the notion is so common that the character of the class is as clear as that of the other classes.[24]

Unlike fever, cough or spasm, one could not directly see, touch, or feel the characters of madness: to achieve a successful understanding of madness, the nosologist's vision should penetrate into the 'notion' of the mad, to the content of their disordered mind.

Accordingly, 'maladies spirituelles' were divided into three sections, each of which corresponded to one of the three mental faculties, all of which are not visible as are spasm and cough: 'deliria, in which judgment is hurt,' 'maladies of imagination, in which imagination is hurt,' and 'maladies of desire, in which will is hurt.'[25] Here Sauvages followed the common medical enumeration of the faculties of the internal senses. Like Boerhaave and many others, Sauvages thought that the mind had three principal functions of judgment, imagination/memory, and will, and his three sections of mental diseases corresponded to the tripartite division of the faculties of the mind.[26]

Each of the three sections was further divided into several genera. To the first section belonged six genera: amentia, mania, melancholia,

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24. Sauvages, Nouvelles classes, p.290.

25. Sauvages, Nouvelles classes, p.289.

26. Sauvages, Nouvelles classes, p.289; Herman Boerhaave, Dr. Boerhaave's Academical Lectures on the Theory of Physic, 6 vols. (London: W. Innys, 1742-46), vol.4., pp.227-67. Albrecht von Haller, First Lines of Physiology, (Edinburgh, 1786; rept. with intro. by Lester S. King, New York: Johnson Reprints, 1966), vol.2., pp.33-41.

demonomania, erotomania, delirium (a short-term delirium). The second section contained again six genera: oblivio, moron, vertigo, tinnitus, somnambulimus, terreur panique. The third section was divided into two subsections, 'maladies of desire,' and 'maladies of aversion.' The former had eight genera: rabies (desire to bite), nostalgia, polydypsia (insatiable thirst), fames (excessive appetite for food), picca (desire to eat what is not food), satyriasis (excessive venery in men), nymphomania (the same in women), tarantismus (immoderate desire to dance). The latter had three genera: antipathia, cacositia (aversion to food) and hydrophobia. Each genus in turn contained species, the number of which varied from two to fifteen.

This tripartite classification of the diseases of the mind was accepted by Linné (who was a close correspondent of Sauvages') and Sagar: the article 'maladie' in L'Encyclopédie also adopted it.[27] And Sauvages himself kept it in his second and by far more voluminous and influential nosological work, Nosologia Methodica published in 1763. Class eight in the book, folie, was divided into four orders, one of which held two anomalous genera. The three main orders remains the same as the three sections of Nouvelles classes: hallucinations (disorders of imagination), bizarreries (disorders of will), and deliria (disorders of judgment).[28]

Despite their apparent similarity, the class of 'maladies spirituelles' in Nouvelles classes and that of 'folies' in Nosologie méthodique were framed by different principles. First, the classification of madness in the earlier work was at odds with Sauvages' own principle. The three sections

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27. Berg, 'Linné et Sauvages'; Carl von Linné, Genera Morborum (Upsala, 1763): J.B.M. Sagar, Systema Morborum Symptomaticum (Vienna, 1771); Diderot and d'Alembert eds. L'Encyclopédie (1751-80), article, 'maladie.' The classificatory systems of Sauvages, Linné, Vogel, Sagar, and Cullen were occasionally published together. See for instance, William Cullen, Synopsis Nosologiae Methodicae, 2 vols. (Venice: J.A. Pezzana, 1795).

28. Sauvages, Nosologie méthodique, 'Huitième classe, des folies,' vol.2, pp.587-759.

were put together, Sauvages explained, because they were all 'the injuries of one of the three principal functions of the mind, directly and indirectly resulting from indisposition of the fibres of brain.'[29] Sauvages' explanation by recourse to the cerebral fibres was apparently contaminated by the anatomical and etiological considerations he himself rejected. One of the reasons for this glaring inconsistency might be that he was here concerned with an attempt to distinguish madness as the medical disease from non-medical mental aberration. Madness was, Sauvages claimed, a disorder of the mind that was accompanied by 'apparent indispositions of the body,' while 'purely spiritual' mental disorders were not. Just after he gave its definition to the class of 'maladies spirituelles,' he tried to distinguish madness as a disease from 'purely spiritual' disorders of the mind, such as 'fault in judgment, in wit and in memory, distraction, light-headedness,... error, heresy, strong passions.' And this boundary between bodily-cum-mental disorders and purely mental ones was congruent with the limit between the territory of physicians and that of metaphysicians: the former was a proper concern of physicians and the latter should be left to 'moralists.'[30]

Secondly, madness was still essentially illusion. The way in which cerebral indisposition caused madness was explained by an iatro-mechanical argument framed around perception of the external world. When the fibres lost their proper tension, there would follow ideas and judgment that did not agree with the impression of an external object.[31] Understandably, this explanatory model did not explain the section of diseases of will, and Sauvages left it rather isolated from the other two sections. All that Sauvages did in Nouvelles classes was to attach diseases of will to those of imagination and of judgment understood in the very

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29. Sauvages, Nouvelles classes, p.289.

30. Sauvages, Nouvelles classes, p.289.

31. Sauvages, Nouvelles classes, p.291.

common framework of madness as wrong perception, and to claim that all three were caused by and seated at corporeal disorders in the brain.

This suggests that in the early 1730s young Sauvages was still thinking about madness in terms of bodily seats and causes, largely within the framework of the model of illusion. Although he recognized that the special viewpoint should be employed to study madness and attempted to look at the content of the mad mind, it seems that he could not develop his own seminal suggestion. His attempt to impose a strict distinction between medical/bodily madness and moral/mental aberration kept him from consistent development of his own principle, his vocabulary on the mental aspects of madness was scant and the section of the disordered will was so to speak just an appendix to the commonplace model of madness then widely held.

b) Sauvages' mature challenge: Nosologie méthodique

Thirty years later, in Nosologie méthodique, Sauvages did much more: he came up with an original understanding of madness and made the class of vesaniae a more tight-knit unity by introducing a series of new points.[32]

First, he repudiated his own former view of characterizing madness by corporeal causes in the brain; indeed he discarded repeatedly and vehemently the idea that insanity was caused by nothing but cerebral disturbances. It seems that he did this for ideological rather than medical reasons:

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32. Here we need to qualify Julian Martin's claim that '[Sauvages'] subsequent works on the histories of diseases were logical extensions of his initial labours [in Nouvelles classes.]' (Martin, 'Sauvages' nosology,' 127). This assessment is correct at the level of the general principles of classification, but 'maladies spirituelles' in Nouvelles classes and 'vesaniae' in Nosologia Methodica were constructed around radically different frameworks.

> It is materialistic to wish to deduce the madness and sane reason of man only from the consonance and disconsonance of fibres of the brain, without considering the power which the liberty has over the actions proper to the soul and over the affections. If it were possible to assign a cause purely mechanical to the errors, one could no longer ascribe the errors to those who committed them and the moral philosophy and justice would be annihilated.[33]

Sauvages' repudiation of the somatic attribution of madness was backed by his anxiety over the danger of moral licentiousness caused by the materialistic determinists, whom Sauvages called 'the partisans of Spinoza.' Explaining the mental disorders only by the mechanism of the body, as he had done in Nouvelles classes, was morally dangerous.

Following this position, Sauvages abandoned the former corporeal basis of the three genera of mental disorders. Although he admitted that some madness had corporeal disorders in organs and in the brain as its primary causes, still he claimed that one could find some mental diseases in which the soul suffered principally without organic disorders.[34] The 'purely spiritual' mental disorders, which he had discarded as belonging to the domain of moralists, found their place in medical discourse.

Moreover, all forms of madness involved genuinely mental aspects. He showed the duality of madness by the example of the different results of hallucination in a peasant and a philosopher. A peasant who had a hallucination was easily led to believe that he really saw a fly before his eyes because he had not cultivated his judgment, while a philosopher in the same bodily condition could tell the error of sight and prevent himself

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33. Sauvages, Nosologie méthodique, vol.2, p.592. The ideological background of the shift in Sauvages' attitudes remains to be studied.

34. Sauvages, Nosologie méthodique, vol.2, p.594. Here Sauvages coupled the non-corporeal causation of madness with his criticism of materialist medicine. 'This shows one that it isn't a corporeal vice alone that is the principle of mental diseases, as Boerhaave believed and the partisans of Spinoza claimed.' (Ibid.)

from falling into the false belief.[35] One needed not only a defective brain but also a defective mind to be mad: 'madness depends on the dual conditions of the mind and the body.'[36] Sauvages was not satisfied with the former model of the passive mind persuaded by the false image the body made, because he thought it was materialistic, deterministic and left no room for the free-will of the mind. Madness for Sauvages was not simply the result of the disordered body, but also the result of 'the abuse we make of our liberty.'[37] Unlike in Battie's, Boerhaave's and Haller's schemes, the mind here is not passively persuaded by the false image due to bodily disorder: it actively commits the mistake.

Sauvages' challenge was buttressed by his changing view of the principal faculty of the normal mind. Many physicians had understood sanity of the mind mainly as a proper representation of external objects. The sane mind was, for them, first and foremost, a well-made camera obscura which passively received images from the outer world. Sauvages, in contrast, claimed that the mind was to be conceived as an active agent that could direct itself and the body in which it resided, toward their 'perfection.' So, for Sauvages, the core of the faculties of mind was the function of will, which 'made one desire the good, which makes him more perfect.'[38]

Sauvages not only put the faculty of will at the centre of the operation of the mind: he also united the faculties of imagination and of judgment with the faculty of will. Will was divided into volonté, or rational appetite, and cupidité or sensitive appetite. The former was led

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35. Sauvages, Nosologie méthodique, vol.2, p.593. Likewise, a drunken man sees two candles and believes there are two when there is actually one, while a sober person suffering from a disorder of sight sees two but can tell there is one.

36. Sauvages, Nosologie méthodique, vol.2, p.601.

37. Sauvages, Nosologie méthodique, vol.2, p.593.

38. Sauvages, Nosologie méthodique, vol.2, pp.589-91.

by 'intellect,' the higher faculty of understanding (connoître [sic]), whose main function was judgment. The latter was guided by the lower knowing faculty of 'instinct,' to which the function of imagination belonged. The 'intellect' provided the mind with clear and distinct ideas, while the 'instinct' produced confused ideas: these clear and confused ideas were the sources of volonté and cupidité, respectively.[39] The two faculties of judgment and imagination were closely connected with the process of will. Indeed, they were often understood by Sauvages as serving the function of will; 'the higher faculty of knowing, which is called intellect, is given to a man so that he could tell the true from the false, the truly good and the truly bad from the apparently good and the apparently bad.'[40]

Sauvages borrowed this complex and hierarchical framework for understanding the functions of the mind from a German philosopher, Christian Wolff, an ultra-influential but vastly understudied figure in the German Enlightenment.[41] The ideas of perfection, of the two grades of

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39. Sauvages, Nosologie méthodique, vol.2, pp.589-90.

40. Sauvages, Nosologie méthodique, vol.2, p.590.

41. Overshadowed by his predesessor Leibniz and his successor Kant, Wolff is one of the most unduly neglected figures in the study of the Enlightenment, especially by English historians of ideas. Besides exercising massive influence upon German metaphysics and natural philosophy, Wolff had intellectual ties with the medical world. During his professorship in Mathematics at Halle (1711-1723), he was closely acquainted both with Stahl and Hoffmann; his correspondents included some physicians in Germany, England and France. The secondary sources I have consulted are: Encyclopedia of Philosophy, article, 'Wolff'; DSB, 'Wolff'; John V. Burns, Dynamism in the Cosmology of Christian Wolff: a Study in Pre-Critical Rationalism (New York: Exposition Press, 1965); Frederick Copleston, A History of Philosophy, vol.6 (London: Burns and Oates Ltd., 1960), pp.105-12; C.A. van Peursen, 'Christian Wolff's Philosophy of Contingent Reality,' Jour.Hist.Phil., 1987, 25: 69-82; Wolfram Kaiser and Arina Völker, 'Christian Wolff und die Medizinische Fakultät Halle,' in Christian Wolff als Philosoph der Aufklärung in Deutschland, eds. by Hans-Martin Gerlach, et al. (Wittenberg: Wissenschaftliche Beiträge der Martin-Luther Universität Haller, 1980), 147-54; Thomas P. Saine, 'Who's Afraid of Christian Wolff?' in Anticipations of the Enlightenment in England, France, and Germany, eds.

the function of will, of the two grades of the knowing faculty, of the distinction of true good and apparent good, and many others were found in the virtually same forms in Wolff's works such as Philosophia Prima sive Ontologia (1729), Psychologia Empirica (1732), Psychologia Rationalis (1734), Theologia Naturalis (1738-9).[42] And Sauvages was not isolated in his substantial borrowing from Wolff. In mid-century France, some writers on natural philosophy were interested in the Wolffian system: an abridgement of his major works was published in French in 1743, and Madame de Châtelet (1706-49) may have been one of its readers.[43] Sauvages' adoption of Wolff needs further study, but it is not surprising. Wolff was an eminent figure. Also Wolff's teleological explanation of living things would have naturally apealed to Sauvages' view of the mind as active agent.[44]

Among the many points Sauvages incorporated into his medicine from Wolff's system, most fundamental were 'perfection' and the teleological understanding of man and nature proceeding towards their own perfection. Philosophy, Wolff stressed, should be concerned as much with the study of how to promote human happiness or how to reach 'perfection' by improving our mental faculties, as with the epistemological

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by Alan Charles Kors and Paul J. Korshin (Philadelphia: University of Pennsylvania Press, 1987), 102-33.

42. See Jean École, Introduction à l'opus metaphysicum de Christian Wolff (Paris: Vrin, 1985); Jean École, La métaphysique de Christian Wolff (Hildesheim: Georg Olms Verlag, 1990).

43. Jean des Champs, Cours abrégé de la philosophie Wolffienne (Amsterdam and Leipzig: Arkstée et Merkus, 1743). Madame de Châtelet was one of Wolff's correspondents. See Gerlach et al. eds, Christian Wolff, 'Appendix.'

44. As for Sauvages' animism, see French, 'Sauvages, Whytt and the Motion of the Heart'; idem, 'Sickness and the Soul'; Dulieu, La médecine à Montpellier, pp.250-53. As for Wolff's teleology, see the article 'Wolff' in The Encyclopedia of Philosophy.

enquiry into the bases of human knowledge.[45] The Wolffian idea of perfection was already present in Sauvages' Pathologia Methodica published in 1752.[46] Citing Wolff, Sauvages defined perfection in general as a harmony of several parts in accord with a certain single aim.[47] When understood in the medical context, harmonious perfection was a state of health in which one could find a collaboration of several parts of a body and the mind toward a desirable end, especially the end of self-preservation; the state of disease was identified as a less perfect state in which the parts did not conspire to achieve such an aim.[48]

Sauvages put madness into this teleological characterization of human health and disease. Madness was as a disharmony between mind and body resulting in incapacity to pursue the proper ends. In a harmonious and sane state, mind and body collaborated towards the end of preservation of life and of making oneself more perfect. Imagination could raise the ideas of the good and the bad; intellect could tell what was really good for the body from what was not; and will could desire what was really good and what would make one more perfect.[49] In contrast,

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45. Christian Wolff, Logic, or Rational Thoughts on the Power of the Human Understanding (London: L. Hawes et al., 1770), li. Wolff's claim that improving our mental faculties makes us 'perfect' touched the nerve of the Pietist in Halle, for it implies that Wolff put reason in the place of faith, which ended up in Wolff's being expelled from Halle in 1723. See Copleston, A History of Philosophy, p.110. As for the German Pietist and medicine in the period, see Johanna Geyer-Kordesch, 'Passions and the Ghost in the Machine: or What Not to Ask about Science in Seventeenth- and Eighteenth-Century Germany,' in The Medical Revolution of the Seventeenth Century, eds. by Roger French and Andrew Wear (Cambridge: Cambridge U.P., 1989), 145-63.

46. I used the French translation in Sauvages, Ouvres diverses, 2 vols. (Paris: J.P. Costard, 1776), vol.1, 'Pathologie méthodique.'

47. Sauvages, Ouvres diverses, vol.1, p.12. Here he cited Wolff's Ontologia.

48. Sauvages, Ouvres diverses, vol.1, pp.12-13.

49. Sauvages, Nosologie méthodique, vol.2, p.665.

in the disharmonized state of madness, mind could not judge whether a certain thing was good for the health, neither could it desire the things proper for one's perfection: 'in the persons attacked by madness, the mind can't discern the truth and can't choose the good in accord with its principal end ... reason is no longer capable of attending its end, that is the conservation of the health.'[50] Sanity of the mind for Sauvages consisted, in a word, in aiming at a proper end.

Disorders of will provided the clearest illustrations. Sauvages reported a case of picca in a young girl who ate plaster or mud, hoping it would be good for her beauty, as an example to explain madness in general.[51] Boerhaave and others would have claimed that the mad girl was in such a delirious state that she represented the images of sugar or chocolate instead of proper ideas of plaster or mud. For Sauvages, the madness of the girl did not at all depend on mis-representation of external things. The girl was mad because she could not wish the proper thing for the preservation of her health.

Borrowing fundamental frameworks from Wolff's system, Sauvages madness was thus tightly framed around the issue of man's ability to pursue an end, to make one's state more perfect. Now we know what Sauvages' re-defined madness was not: what, then, was it like?

c) 'Americans, peasants, women, and libertines'

Unlike almost all major theorists I have looked at--Descartes, Willis, Pitcairn, Mead, Boerhaave, Haller and Battie--, Sauvages did not claim that madness was analogous to an illusion. This is understandable when one considers that Sauvages (and Wolff) constructed the sane mind as a unity every part of which was actively promoting one's happiness, rather than as a well-made camera obscura. This led Sauvages to find a

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50. Sauvages, Nosologie méthodique, vol.1, p.49.

51. Sauvages, Ouvres diverses, vol.1, p.177.

parallelism between a madman and 'Americans, peasants, women, and libertines.'[52] For they did not pursue true happiness and perfection. They abused the liberty given to mankind, did not cultivate their intellect, did not apply themselves to the study of the true goodness, found pleasure only in sensual and vulgar things, and hence could neither judge nor desire the true good. They were analogues of a nymphomaniac girl who would give up her chastity for carnal pleasure, and of a tobacco-maniac who insisted on having only tobacco instead of food and drink: they could not tell a true good from an apparent good.

What was, then, the difference between being an American and being a madman? The young Sauvages in his Nouvelles classes would have answered the question quite easily, by looking at whether the body is disordered or not. For Sauvages in 1730s, madness was a physical disease and being an American was a 'purely spiritual' error. In Nosologie méthodique, too, he again discriminated between 'physical maladies' and 'moral vices' on roughly the same criterion: physical maladies were caused by natural and mechanical process, while moral vice resulted from misuse of one's mind.[53] This distinction, however, did not coincide with the boundary between madness and being an American, because for the mature Sauvages in 1760s, madness itself included both physical and somatic maladies and mental and moral vices, as I have already discussed.

Given that madness and moral vice were fundamentally indistinguishable, the task of moralists and the duty of physicians should overlap with each other:

> It is a duty of a philosopher to try to cure mental maladies. For the origin of the diseases is the idea which the patient forms about a good thing that is, in reality, not at all as good as he believes.

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52. Sauvages, Nosologie méthodique, vol.2, p.601.

53. Sauvages, Nosologie méthodique, vol.2, p.591. This distinction was, again, borrowed from Wolff. See Jean École, La métaphysique de Christian Wolff, p.374.

> And it is a task of a well-educated physician to prove to the misled person, by reasoning, that the good which he desires is nothing but a seeming good and really a bad thing.[54]

Thus the moralist should cure a madman, and the physician should instruct Americans into aiming at happiness and perfection by instilling in them true judgment and will. The strict boundary between physician and moralist was discarded; the physician was to look at the moral and mental aspects of the mad, rather than limiting his interest only to the body.[55]

Sauvages' shift from Nouvelles classes to Nosologia Methodica, therefore, shows a drastic, thorough and fundamental reformulation of the problem of madness. The Sauvages of 1731 and the Sauvages of 1763 are almost diametrically opposed in many respects. In 1731, the young Sauvages could afford little more than the commonplace model of madness as the production of false images; the mind was passive and overwhelmed by the bodily disorder when it was mad. He framed madness within the bodily map of cerebral fibres. His distinction between madness and moral folly was grounded on whether the disorder was caused by the body or by the mind, and this distinction was congruent with the boundary between the territories of physicians and moralists. His vocabulary about the functions of the mind was scant. In all, he had little to add to the approach of many other physicians.

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54. Sauvages, Nosologie méthodique, vol.2, p.602.

55. The problem of the similarity of madness and moral error became a major concern of British medical writers on madness in the late century. Cullen raised the issue of the subtle distinction, and Thomas Arnold wrote that madness is a severe form of moral folly, almost identifying them. See Cullen, Works, vol.1, p.145; Arnold, Observations, vol.1, viii, pp.54-77. This shows that we need to revise the history of 'moral insanity,' first formulated in England by James C. Prichard (1786-1848). See Hunter and MacAlpine, Three Hundred Years of Psychiatry, pp.836-42; Eric T. Carlson and Norman Dain, 'The Meaning of Moral Insanity,' Bull.Hist.Med., 1962, **36**: 130-40.

In 1763, the mature Sauvages came up with totally different formulation of the issue under the disguise of an apparently identical classification. The Cartesian view of madness as an illusion was replaced by the characterization of madness as a failure in promoting one's own true happiness or perfection; one became mad when one's mind was active in a wrong way. Madness no longer resembled an optical illusion, but rather the state of 'the Americans, peasants, women and libertines,' who gave up true happiness for inferior and sensual pleasure. Madness was a mixture of bodily and moral/mental vices. Physicians and moralists now looked at the same objects and did the same thing to correct the errors the patients were committing. This is a formidable challenge to the scheme of medical discourse on madness I have so far looked at in the thesis.

It seems that Sauvages could conduct the challenge mainly because he based his account of the mind and its disease on Wolff's philosophy, structuring his psychiatric discourse according to the philosophy of the mind instead of the physiology of the body.[56] As Roger French perceptively argues, Sauvages gave up locating a disease in the Boerhaavean 'mechanical structure-function map of the body,' which he adopted in his account of madness in Nouvelles classes.[57] Sauvages abandoned it in Nosologie méthodique. The framework of the anatomy and physiology of the body was replaced, or at least supplemented, by the new map of Wolffian philosophy of the mind, which seems to have uprooted the former somatic model of madness as illusion and the passive role assigned to the mind.

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56. The coupling of philosophy of the mind and medicine was not entirely new. As we have seen, mid-century works like David Hartley's Observations on Man (1749), Charles Bonnet's Essai de psychologie (1755) and Essai analytique sur les facultés de l'ame (1760), and Antoine le Camus's Medecine de l'esprit (1753) embodied both philosophy of the mind and medicine. However, what is common to these works is the attempt to underpin the operations of the mind by its supposed bodily process. In a word, they mapped the mind on the body. Sauvages, in contrast, created a mental map very much independent of the body.

57. French, 'Sickness and the Soul,' 103.

a) Cullen's nosology of mental diseases

When Sauvages was launching his radical challenge against the former understanding of madness at Montpellier, William Cullen was developing another new understanding of madness at Edinburgh, another centre of medical education in Europe.[58] Concerned with classifying diseases mainly for teaching purposes, Edinburgh professors were quick to take up Sauvages' general nosological project. John Gregory (1724-73) classified diseases in Sauvages' manner into six classes as soon as he started to lecture on the Practice of Physic in 1767; and Cullen showed interest in Sauvages' nosology as soon as the latter's work appeared in 1763.[59]

Of the two, it seems that Cullen took Sauvages' project more seriously.[60] In his clinical lecture, Cullen reiterated Sauvages' project of nosology. A correct nosology was the culmination of medical learning for

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58. See Lawrence, 'Medicine as Culture.'

59. John Gregory, 'Lectures on the Practice of Physic, 1767-8,' WIHM, Wes.Manu., 2618, pp.65-69. Lawrence, 'Medicine as Culture,' pp.270-72 & 347-72.

60. Gregory invested less effort of his own in classifying mental disorders than Cullen. In his lecture on the Practice of Medicine in 1767-8, Gregory said that Sauvages' nosology was artificial and recommended his students to consider it 'as a dictionary to find name [of a disease].' (Gregory, 'Lectures on the Practice of Physic,' pp.52-62 and p.67.) Nevertheless, Gregory's 'Disorders of mind,' class five of Gregory's classification, was very much similar to Sauvages' class of vesaniae in Nosologia Methodica, dividing the class into four genera, 1. Disorders from diseases of organs without the brain, 2. depraved appetite, 3. delirium, error of imagination and judgment, idiotism, 4. anomalous disorders of mental faculties. (Gregory, 'Lectures,' p.67). Gregory, however, changed his attitude quickly and in 1768 praised Sauvages and in his published Elements of the Practice of Physic wrote that Sauvages's was the best system. See Lawrence, 'Medicine as Culture,' p.271. More detailed comparison of Gregory's and Cullen's understanding of madness will be fruitful.

'perfect division and definition is the summit of human knowledge in every part of science.'[61] Like Sauvages, he was against classifying diseases according to their causes in the manner of Boerhaave and Gaub.[62] He therefore differentiated pathology, where each disease was to be considered in terms of its causes, from nosology, in which 'we abstract from its cause, and consider it only as evident from certain external appearances.'[63] Cullen was, generally speaking, rather keen to adopt Sauvages' principles, despite an important departure in maintaining that the anatomical seat of the diseases revealed by post mortem dissection was important to nosology.[64]

His own arrangement and classification was, however, substantially different from Sauvages'. Cullen published his own nosology, Synopsis Nosologiae Methodicae (1769), subsequent editions of which seem to have replaced Sauvages' as the common textbook of nosology.[65] There he drastically simplified the scheme, reduced the number of the classes, genera, and species: Sauvages had ten classes and about 300 genera, while Cullen had four classes and about 150 genera.[66] Moreover, unlike Linné, Sagar and Gregory who adopted an arrangement very similar to Sauvages', Cullen substantially altered the arrangement of diseases. Most remarkably,

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61. William Cullen, The Works of William Cullen, M.D. Containing His Physiology, Nosology, and First Lines of the Practice of Physic, 2 vols. (Edinburgh: William Blackwood, 1827), vol.1, p.445. Cullen thought that nosology had heuristic merit, too. See ibid, pp.422-23.

62. Cullen, Works, vol.1, pp.457 & 472.

63. Lawrence, 'Medicine as Culture,' pp.356-359; Cullen, The Works, vol.1, p.472.

64. Cullen, Works, vol.1, p.424

65. Sauvages' Nosologia Methodica was not published in any language after 1791. Cullen's Synopsis appeared in original Latin, English, French, German, etc, in several countries.

66. As for the comparison of the general structures of several schemes of nosology, see King, The Medical World, pp.192-226.

he created the class of 'neurosis,' in which the order of madness ('vesaniae') was included.

Cullen's order of vesaniae was differently framed. Unlike Sauvages and many other nosologists, Cullen did not adopt Sauvages' tripartite classification of mental disorders, but curtailed Sauvages' class of vesaniae. He included only disorders of judgment in his order of vesaniae, omitting disorders of imagination and of will. In the first edition of his Synopsis, he defined the order of vesaniae as 'the functions of the mind impaired.' In later editions, the term 'the functions of the mind' was changed to 'the judgment,' to make it clear that he disagreed with Sauvages, Sagar and Linné, and that he did not consider Sauvages' hallucinations and wrong desires as belonging to madness: 'who would consider sygrimos [insatiable thirst] or bulimia [insatiable hunger] or any other hallucinatio or morositas, which do not depend on judgment, as a vesania?'.[67] Although Cullen admitted that hallucinations and erroneous appetites were sometimes combined with vesaniae, Cullen thought they were accidental symptoms of madness and did not constitute any essential characters of the order. In his First Lines Cullen wrote that hallucination arose 'from the same cause as the more general affection of the judgment' and erroneous appetite is mere 'consequence of a false judgment.'[68]

False judgment was, therefore, essential in madness. This was different both from Battie's (and many others') 'deluded imagination' and Sauvages' deviation from perfection centred around the faculty of will. As for disordered imagination (hallucination) and erroneous appetite (morositas), Cullen thought they were local diseases: hallucinations were disorders of the sense organs, and erroneous appetites resided in the organs that were related to respective appetites. On the other hand, vesaniae were diseases seated in the brain (remember anatomical site was

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67. William Cullen, Nosology, or a Systematic Arrangement of Diseases (Edinburgh: William Creech, 1800), p.130. I have not yet identified the actual edition where Cullen first made this revision.

68. Cullen, Nosology, p.130: idem, Works, vol.2, p.509.

taken into consideration when Cullen formed his nosology). This in turn meant that hallucinations and erroneous appetites could be regarded as madness when they were due to disorder in the brain. The following remark in Cullen's First Lines confirmed this:

> I omitted false perception and erroneous will, because I had excluded both the hallucinationes and morositates from the order of vesaniae. But I had excluded them in so far as they depend on a fault or disease of the external organs; and I now perceive, that I should have retained them more distinctly in so far as they depend on the brain itself.[69]

In Cullen's nosology of mental diseases, therefore, there was an undercurrent of anatomical approaches to the problem of classification. His confessed principle was that of classification by symptoms, but the anatomical site of the mental diseases was the crucial issue when he formed the order of vesaniae.

The brain, the anatomical site of madness, was also the place where the principle of life resided. Challenging Boerhaave's identification of life with the circulation of the blood, and following Haller's and Whytt's ideas of sensibility and irritability, Cullen maintained that the state of the brain and the nerves was essential to life:

> the nervous fluid in the brain is truly capable of different states or degrees of mobility, which we shall call its states of excitement and collapse ... and it is in the excited state of this that I suggest life to

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69. Cullen, Works, vol.2, p.518. It seems that Cullen was influenced by Jerome Gaub, who divided delirium in the manner of Sauvages. See Jerome Gaub, The Institutions of Medical Pathology, trans. by Charles Erskine (Edinburgh: for the Translator, 1778), p.271; William Cullen 'Lectures on the Comment on Gaubius' Pathology (1767),' WIHM, Wes.Manu, 1927, p.159.

consist, and when it is no longer excited in any degree, we call it the state of death.[70]

Life and madness, therefore, shared their seat of the brain. Accordingly, madness was placed in the scale of different grades of vitality. A certain sort of mania was accompanied with the greatest degree of excitement of the brain, while 'lesser degree of excitement' meant the ordinary state of waking men in health. 'A degree of collapse' caused natural sleep; 'a greater degree of collapse' was the state of syncope, and 'complete and irrecoverable collapse' was death itself.[71] Maniacs' extraordinary strength, their vigilance, their resisting the power of drugs showed that their brains were in an extreme state of excitement.[72]

Thus therapeutics of madness were framed around the issue of excitement of the brain. The erect posture would contribute to the cure of madness because 'a horizontal always increases the fulness and tension of these vesels [of the brain], and may thereby increase the excitement of the brain.' Instilling fear would cure madness, because fear is a passion that diminishes excitement. 'The confinement of madmen should hardly ever be in their usual habitation,' for seeing familiar objects would excite them into wrong associations. Exposing the maniacs to an extreme coldness was good, as it would diminish the excitement.[73]

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70. Cullen, Works, vol.1, p.129. As for Cullen's criticism on Boerhaave's identification of life with the blood circulation, see ibid., p.135.

71. Cullen, Works, vol.1, pp.131-134.

72. Cullen, Works, vol.1, pp.131-32. Cullen wrote that the maniacs required ten times as much emetic as the ordinary person to produce vomitting.

73. Cullen, Works, vol.2, p.524; 'Lectures by Dr. William Cullen on the Practice of Physick, c.1770,' WIHM. Wes. Manu., 1968, 'Ordo IV Vesaniae.' James Gregory, his successor of the chair of the practice of physic, lectured that he knew the case of a madman in Petersburg, who was cured by staying out at '59 degree below the freezing point.' James Gregory, 'Lectures on the Practice of Physic, c.1795,' WIHM. Wes. Manu.,

Likewise, by dissecting the brains of those who died mad, Cullen tried very hard to confirm his attribution of the causes of madness to the 'state of unequal excitement' of the brain. Here Cullen was rather aprioristic. It does not seem that Cullen dissected a substantial number of the brains of maniacs, and Morgagni's and Meckel's evidence available to Cullen did not support Cullen's view. Nevertheless, Cullen stuck to the view that there should be post-mortem signs of different degrees of excitement in the brain:

> I suspect the dissectors [Morgagni and Meckel] have not always accurately inquired into this circumstances [of unequal excitement of the brain]; but in several instances, it appears that these states had been different in different part of the brain; and instances of this inequality will afford a confirmation of our general doctrine.[74]

Cullen did not have any evidence which would have supported his attribution of madness to the changes in the brain; he just believed it.

Thus Cullen framed the nosology, pathology and the therapeutics of madness around the idea of cerebral excitement and collapse, the pivotal part of his whole physiology. Just as Willis explained madness in chemical framework, Pitcairn framed madness around the issue of circulation of the blood and the secretion of the animal spirits, Cheyne and others adopted Boerhaaveian fibre as the site of madness, and Battie took up Haller's physiology of sensibility as the model to understand madness, Cullen put madness in his scheme of physiology of excitement and collapse.[75]

2606, pp.8-9.

74. Cullen, Works, vol.2, p.519.

75. During the eighteenth century, nerves largely remained the ultimate anatomical sites that the physicians looked at when explaining madness. See Eric T. Carlson and Meribeth M. Simpson, 'Models of Nervous System in Eighteenth-Century Psychiatry,' Bull.Hist.Med., 1969, **42**: 101-15.

b) Cullen's Humean account of madness: association and custom

This does not mean that Cullen understood madness exclusively in bodily and anatomical terms. Quite the reverse. Just as Sauvages followed Wolff's philosophy of the mind, Cullen used a substantial amount of the philosophical vocabulary of David Hume to describe the state of the mad mind. Hume and Cullen were intellectual allies as well as close friends since Cullen supported Hume's application for the chair of professor of logic at the University of Glasgow, formerly occupied by Adam Smith (1723-90) in 1751.[76] As Christopher Lawrence shows, Hume's constructive scepticism exercised great influence upon the way in which Cullen built his theory of medicine, and Cullen's physiology followed Hume in taking custom as the vital moulder of animal faculties: 'the action of the brain is often determined and regulated by custom and habit; that is, by laws established by frequent and uniform repetition.'[77]

Hume's influence on Cullen is even more evident in the latter's account of judgment and its disorder. Cullen explained what he meant by judgment as follows:

> simple perceptions and their relations are laid up in the mind by associations, and it is in following these associations that the mind brings back before it the relations which it is to judge of.[78]

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76. John Thomson, An Account of the Life, Lectures and Writings of William Cullen M.D. (Edinburgh: William Blackwood, 1832), p.72. See Hume's letters to Cullen in The Letters of David Hume, 2 vols., ed. by J.Y.T. Greig (Oxford: Clarendon Press, 1932), vol.1, p.163 and vol.2, p.449-50. For Cullen and Hume, see Lawrence, 'Medicine as Culture,' pp.312-14.

77. Cullen, Works, vol.1, p.115. As for the effect of the custom on sensation, see ibid., pp.43-70. This point was discussed in Lawrence, 'Medicine as Culture,' pp.325-36 and 340-47.

78. Cullen, Works, vol.2, p.510.

This is strikingly similar to Hume's account of our understanding of, say, causal relations. If we have sufficient number of repeated experiences of event B (e.g. heat) succeeding to A (e.g. flame), we come to associate the ideas of A and B by habit, which constitutes our judgment that A causes B, i.e., flame causes heat.[79]

Hume claimed that such custom and association of ideas are the basis of all our intellectual operations: 'without the influence of custom, we should be entirely ignorant of every matter of fact beyond what is immediately present to the memory and senses.'[80] An apparent echo of this Humean idea of custom as 'the great guide of human life' is to be found in the following remark of Cullen:

> So a man in his sense runs over the associations, take up in course the several relations, applies the same judgment as before, and acts in consistency with his usual train.[81]

Cullen went so far as to say that the habit is the sole principle of our judgment, as did Hume: Cullen wrote 'it is nothing but [my emphasis] pursuing our ordinary train of associations ... that constitute what is called a sensible man.'[82] Accordingly, Cullen's madness or disordered judgment lay in deviating from the habit: 'delirium is where we do not follow our

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79. David Hume, A Treatise of Human Nature, ed. by P.H. Nidditch (Oxford: Clarendon Press, 1978), pp.98-106, 130-42, and 155-76. See also David Hume, An Abstract of a Book Lately Published; Entitled, a Treatise of Human Nature (London: C. Borbet, 1740), in the above edition, pp.649-55.

80. David Hume, Enquiries concerning Human Understanding and concerning the Principles of Morals, ed. by P.H. Nidditch (Oxford: Clarendon Press, 1975), p.45.

81. Cullen, Works, vol.1, p.144.

82. Cullen, Works, vol.1, p.144

ordinary train, but, on the contrary, pursue one inconsistent with all our former established principles or notions.'[83]

Cullen's 'custom' meant common sense, too, for Cullen admitted that as there was so great similarity between the operations of the human mind, it was possible to call a considerable deviation from common sense a disease.[84] Sanity of judgment for Cullen, therefore, consisted also in the propriety of one's behaviour, hence improper behaviour deserved the name of madness. The propriety of one's behaviour for Cullen was, however, very much relativistic and very close to a code of politeness, so to speak. Cullen dilated his relativistic view of propriety and madness as its breach:

> if a man comes into a company, there are certain observances which custom has established, and his behaviour is suited according to the company he comes into; if it is a company of his usual merry companions, the laugh arises and the joke goes round; but it if is a company for business that he is to take a part in, he sits down seriously, speaks of the business in hand, and attends to what the other persons are engaged in; but if he were to treat the last company as he does the first, he would pass for a madman; thus too in the first company I supposed, he may speak of his amours or of his mistress; but if he finds the same men among a number of ladies of honour and virtue, and he renews his discourse there, he would be thought a madman.[85]

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83. Cullen, Works, vol.1, p.144.

84. Cullen, Works, vol.1, p.145.

85. Cullen, Works, vol.1, p.144.

Taste, politeness, propriety of conversation and adaptation of behaviours to the situation constituted sanity of the mind.[86] Sanity thus depended on situation. Talking about one's mistress was not madness in itself: to do it in an improper circumstance was. Compares to Sauvages' claim that being an American is the model of madness because he chooses a sensual pleasure instead of a real happiness, Cullen's attitude is more relativistic.

A social code of behaviour, however, was not the ultimate measure of madness. As 'there is a certain latitude admitted in judgment,' and as 'men differ greatly from one another without any of them being reckoned delirious,' a simple deviation from common sense did not constitute delirium in itself.[87] Instead, the ultimate criterion was the habit of one's own: 'we must farther observe that he is deviating from his ordinary judgment, and from his usual train of thinking.'[88] Unlike Battie's perception of external world and Sauvages' harmonious perfection as a duty of man, Cullen's measure of madness was individualistic. A man was mad, in the final analysis, when he became different from what he used to be.[89] Humean philosophy of association of ideas and custom was an obvious undercurrent of Cullen's social and individualistic characterization of madness.

c) New study of man in the Scottish Enlightenment

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86. As for the problem of virtue and propriety, see Nicholas Phillipson, 'The Scottish Enlightenment,' in Enlightenment in National Context, eds. by Roy Porter and Mikulás Teich (Cambridge: Cambridge U.P., 1981), 19-40.

87. Cullen, Works, vol.1, p.145.

88. Cullen, Works, vol.1, p.145.

89. The individualistic understanding of madness seems to have existed since the Classical medicine. Robert James, A Medicinal Dictionary (London: T. Osborne, 1743-45), article 'delirium' cited the definition of delirium by Celsus which says that 'when any thing is done by the patient contrary to custom, and without a cause, as when he talks much or little, contrary to his usual custome...[my emphasis]' he is mad.

One can say, therefore, that Cullen adopted much of Humean philosophy of mind as the framework for understanding madness. And Cullen did not restrict his use of philosophy of the mind to nosology of madness. Rather, it was a part of his total reform of medicine, which was a product of the Scottish Enlightenment. I will briefly look at the new medicine developed there.

As Christopher Lawrence and John Wright have pointed out, Humean topics are numerous in Cullen's general physiology[90]: the distinction between impression and idea, that is, between primary sensation and the thought of an object absent from reminiscence (although Cullen, following Haller's terminology, chose the term 'sensation' instead of Hume's 'impression.')[91]; and division of sensation into sensations of impression which 'arise from the impulse of external bodies' and sensation of consciousness which 'arise from the mind's being conscious of its own action, and of the motion it excites.'[92] Cullen shows familiarity with Locke, too: rejection of innate ideas[93]; the example of one hand feeling coldness and the other heat in the same water.[94]

Cullen's introduction of the Lockean and Humean philosophy of mind into physiology was done with confidence. Cullen declared at the

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90. Lawrence, 'Medicine as Culture,' pp.325-36. John P. Wright, 'Metaphysics and Physiology.'

91. Cullen, Works, vol.1, p.24; Hume, Treatise, p.1. Here Cullen made it explicit that this dichotomy was borrowed from Hume.

92. Cullen, Works, vol.1, p.28; Hume, Treatise, pp.7-8. This division of Cullen sounds more similar to Locke's than Hume's. See Locke, Essay, 2.1.3-4.

93. Cullen, Works, vol.1, p.49. Locke, Essay, 2.1.1-2.

94. Cullen, Works, vol.1, p.35. 'Different sensations do not always imply a different kind of action in the bodies producing them; for sometimes, different sensations arise merely from a different degree of force in the same kind of action; as manifest in the case of heat and cold.' Locke, Essay, 2.8.21.

beginning of his book that his physiology was different from the others' on that point:

> The doctrine which explains the condition of the body and of the mind [my emphasis] necessary to life and health, is called physiology: I have added here a particular in my physiology that is not common -- 'and of the mind:'[95]

And his lecture revealed that he was keen to defend this approach, claiming that the states of the mind 'may produce very considerable effect upon the bodily state.'[96] Cullen was also aware that he had started to re-define the scope of medical discourse. He maintained that medicine before had improperly neglected the mind: 'I find that the conditions of the human mind must engage our attention more than they have done hitherto.'[97]

This expansion of the scope of medicine does not seem to have been accepted in toto at Edinburgh, for Cullen wrote 'some have thought that I have gone too far in introducing a great deal of metaphysics into my course.'[98] And there was good reason for others to condemn Cullen. As we have seen, the medicine of the earlier half of the century constructed its object of study by eliminating the issues related to human mind. Pitcairn and the iatro-mathematicians were the most radical in their attempt to dispense with the soul. Boerhaave stated that 'the object of physic is the human body.' Commenting on the passage, Haller wrote that physiology should study man as the body, 'not as a metaphysical entity, not as a mind ... for consideration of the two do not at all come under the

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95. Cullen, Works, vol.1, p.5.

96. Cullen, Works, vol.1, p.5.

97. Cullen, Works, vol.1, p.6.

98. Cullen, Works, vol.1, p.6. I have not found who actually criticized Cullen.

province of the physicians.'[99] The mind, wrote Haller, should be excluded from the proper realm of physiology, for:

> It is not the business of the physician to be acquainted with what the mind is, how it passes from one thought to another, or how it recollects the past ideas of things, which we call memory.[100]

It is true that Boerhaave's and Haller's textbooks on physiology included the explanation of what they called external senses (touch, sight, etc.) and internal senses (imagination, memory, judgment, and will), but their account of such topics was concerned only with what happens in the body when one has sensation or when one thinks. The following statement of Boerhaave's epitomizes the attitude of many contemporary medical writers:

> I do not here ask what judgment is, to avoid running into a metaphysical question: but I only enquire what condition of the body that is from whence judgment results.[101]

Into the 'metaphysical question,' the realm where Boerhaave and many others dared not tread, Cullen confidently marched. Where Boerhaave tried to restrict his subject only to the state of the body which accompanied a certain mental phenomenon of judgment, Cullen interwove the two domains. In that sense, Cullen was a successor, if indirect, of David Hartley. Cullen certainly knew Hartley's work, for Cullen mentioned his name. Indeed, Cullen's division of the species of mania into 'mental mania, arising from affections of the mind' and 'corporeal mania,

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99. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.1, p.53.

100. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.5, p.270.

101. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.5, p.273.

arising from evident corporeal causes' was probably probably drawn from Hartley's Observations.[102]

The coincidence between Cullen's and Hartley's schemes is rendered clearer when one examines what type of vocabulary about the mind they employed. Hartley's philosophy of the human mind was based on Locke's logic and moral philosophy, not the pneumatology about the nature of immaterial substance which Cheyne and Robinson adopted. This was also the case with Cullen. Answering the criticism that he introduced 'metaphysics' into medicine, Cullen replied that he only introduced 'the history of the operation of the human minds,' which, according to Cullen, should not be properly called 'metaphysics.'[103] This suggests that Cullen was selective and picked up 'the history of the operation of the human minds,' as the proper component of his physiology, instead of, for example, Cheyne's metaphysics on the immortality of the soul, the nature of the soul considered in its separated state from the body. And 'the natural history of the mind' was, ultimately, Lockean domain. Locke said the aim in his Essay was to describe the way the human mind gets knowledge and opinion 'in plain historical method.'[104]

The direct source of Cullen's 'natural history of the human mind' was almost certainly Hume. Hume claimed the study of 'the operation of the mind' (note the phraseology almost identical to Cullen's) was the base of all sciences, and the sciences like 'mathematics, natural philosophy,

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102. Cullen, Synopsis Nosologiae Methodicae, p.92. Hartley wrote: 'the causes of mania are of two kinds, bodily and mental.' Observations on Man (London: Leake & Frederick, 1749), vol.1, p.400. The scheme was adopted by Arnold, Observations, vol.2, pp.5-10; Chiarugi, On Insanity; MacBride, A Methodical Introduction, pp.182-83.

103. Cullen, Works, vol.1, p.6.

104. Locke, Essay, 1.1.2. By the term 'natural history of the human mind' Cullen almost certainly meant the subject of logic. Encyclopaedia Britannica, 3rd ed. (Edinburgh: A. Bell and C. Macfarquhar, 1797), art. 'logic' says that 'logic ... may be defined the science or history of the human mind.'

natural religion,' and even more 'logic, morals, criticism and politics' were dependent on the science of man.[105] Cullen directly echoed this claim of Hume when he lectured that 'the history of the human mind [is] unavoidable not only in physic, but perhaps in every science.'[106] Cullen's challenge to the Boerhaavean restriction on the realm of physiology was directly tied to Hume's attempt to provide all sciences with the basis of the study of human nature.

Cullen's attempt to fuse 'history of the human minds' and physiology was not an isolated project in Enlightened Scotland. As P.B. Wood has shown, one major focus of Scottish Enlightenment was to produce 'the natural history of man' that encompassed both his mind and body. Such topics were occasionally discussed in clubs, the hotbed of the Scottish Enlightenment, where physicians and philosophers mixed.[107] Both philosophers and physicians tried to connect the two domains of the studies of the mind and of the body. George Turnbull (d.1748), a professor of moral philosophy at Aberdeen, wrote a parallel argument to Hume's attempt to introduce Newtonian experimental method into the study of the human mind: 'I was led long ago, to apply myself to the study of the human mind in the same way as to that of the human body.'[108] Adam Ferguson (1723-1816), the professor of pneumatics and moral

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105. Hume, Treatise, xv-xvi. For Hume's and Cullen's distinction of two sorts of philosophical enquiries, see Wright, 'Metaphysics and Physiology,' 251. See also Hume, Enquiry, pp.5-16.

106. 'Lectures on the Institutes of Medicine by Dr. Cullen, 1770-71,' cited in Wright, 'Metaphysics and Physiology,' p. 251.

107. P.B. Wood, 'The Natural History of Man in the Scottish Enlightenment,' Hist.Sci., 1989, 27: 89-123. For the Select Society, to which Hume, Cullen and inter alia, Adam Smith, Adam Ferguson, Lord Kames, belonged, see Roger L. Emerson, 'The Social Composition of Enlightened Scotland: the Select Society of Edinburgh, 1754-1764,' Stud.Volt., 1973, **114**: 291-329.

108. George Turnbull, Principles of Moral Philosophy (1740), cited in Jane Rendall, The Origins of the Scottish Enlightenment, (London: MacMillan, 1978), p.20.

philosophy at Edinburgh from 1764 to 1778 and one of the central figures of the Scottish Enlightenment, wrote that one cannot separate the study of the body and that of the mind:

> The animal nature of man is the subject of anatomy and physiology. The intellectual nature is the proper subject of pneumatics: but being joined, many of their functions are mixed, and pertain equally to pneumatics and physiology.[109]

Some physicians, too, were keen to look at both the mind and the body. In his enormously popular A Comparative View of the State and Faculties of Man with Those of the Animal World, a work based on a course of papers read at the Aberdeen Philosophical Society, John Gregory lamented that 'those who have studied the philosophy of the human mind ... have been little acquainted with the structure of the human body and the laws of the animal oeconomy, ... and [physicians] have been so generally inattentive to the peculiar laws of the mind and their influence on the body.'[110] In another book, Observations on the Duties and Offices of a Physician, he presented a rough sketch of the medical projects on 'the laws of union between the mind and body,' which he considered of as 'one of the most important enquiries that ever managed the attention of mankind, and almost equally necessary in the sciences of morals and medicine.'[111] His argument included consideration of 'the history of the power and influence of the imagination,' 'the history of dreams,' 'the

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109. Adam Ferguson, Analysis of Pneumatics and Moral Philosophy for the Use of Students in the College of Edinburgh (1766), cited in Gladys Bryson, Man and Society: the Scottish Inquiry of the Eighteenth Century (New York: Augustus M. Kelley, 1968), p.33.

110. John Gregory, A Comparative View of the State and Faculties of Man with These of the Animal World, (London: J. Dodsley, 1772), pp.5-6.

111. John Gregory, Observations on the Duties and Offices of a Physician; and on the Method of Prosecuting Enquiries in Philosophy, (London: W. Strahan et al., 1770), pp.93-94.

history of the power and laws of custom and habit,' etc. Andrew Duncan (1744-1828), another medical professor at Edinburgh, lectured on diversity of the mental powers both in a single individual at different occasions and among different people.[112] Despite their rivalry and disagreement over several issues, both the Edinburgh professors were keen to combat former neglect of the mind.

Summing up, one can look at Cullen's new pattern of medical discourse and his account of madness as one of the results of this Scottish fusion of the two types of discourse. In his pathology and therapeutics of madness, Cullen followed the a similar strategy to Willis, Pitcairne, Boerhaave, Battie and many others. Cullen understood madness within the framework of animal oeconomy, or the physiology of the body. In a word, the common aim of those thnkiers was to describe and cure the mad body. What is special about Cullen is that he added the new vocabulary of Lockean and Humean philosophy to describe the state of the mad mind.

Although the project looks similar to Sauvages' nosological challenge, there are some obvious differences. While Sauvages reached his dual characterization of mental diseases from his opposition to mechanistic determinism, Cullen's dual scheme was a product of the Scottish Enlightenment. In fact, Cullen's view is deterministic seen from Sauvages' point of view.[113] Where Sauvages' effort was mainly restricted in nosology, Cullen's introduction of the Humean philosophy of the mind extended to his reformed and expanded physiology as well. Sauvages'

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112. Gregory, Observations, pp.94-5; Andrew Duncan, 'Lectures on the Practice and Theory of Physic,' WIHM, Wes.Manu., 2238-40, vol.1, pp.386-9. P.B. Wood points out that Gregory's interest in these topics dated from his early student days and connected with his attempt to make a Baconian reform in medicine. See Wood, 'The Natural History of Man,' 91-94.

113. Cullen wrote: 'I shall take it for granted, as demonstrated elsewhere, that although this disease [vesania] seems to be chiefly, and sometimes solely an affection of the mind; yet the connection between the mind and body in this life is such, that these affections of the mind must be dependent upon a certain state of our corporeal part.' (Works, vol.2, p.513.)

mind was understood in Wolffian ontological terms while Cullen followed British tradition of the analysis of the mental states.

I would like to emphasize that both Sauvages and Cullen, however, added a new dimension to the medical understanding of madness. This was the detailed observation of the symptoms of the disordered mind, understood with reference to the contemporary philosophies of the mind. Neither characterized all cases of madness as illusion, as Battie and others had done. Neither dismissed the symptoms of madness as self-evident as Perry and Buchan had done. Instead, they looked at carefully how the mind was disordered and classified according to the way it fell mad. They understood the symptoms of madness on the bases of available accounts of the way how the sane mind worked, Sauvages relying on Wolff, and Cullen on Hume. With the works of Sauvages and Cullen, the philosophical discourse on the state of the mind per se became at last an integral part of medical account of madness.

Conclusion: Crystallization of the Scottish Synthesis

It seems that the Scottish physicians after Cullen did not entirely follow Cullen's new framework to understand madness, with its non-illusion model and newly defined interest in mental state.[114] My cursory look at the writing and lectures of James Gregory (1753-1821), the son of John and the successor to Cullen's chair in the practice of physic shows retrenchment. He does not seem to have followed Cullen's ambitious programme of coupling physiology and 'the history of the operations of the

114. For the fragmentation of the former Edinburgh medical ideology after Cullen's retirement, see Christopher Lawrence, 'The Edinburgh Medical School and the End of the "Old Things" 1790-1830,' History of Universities, 1988, 7: 259-86. See also idem, 'Cullen, Brown and the Poverty of Essentialism,' Med.Hist, 1988, Supplement no.8, 1-21.

mind.'[115] Despite his being a close friend of Common Sense philosophers such as Thomas Reid (1710-96) and Dugald Stewart (1753-1828) and an able metaphysician in his own right, philosophy of mind does not figure prominently in his Conspectus or Brief View of the Theory of Medicine (1790).[116] When Gregory lectured on the Theory of Medicine, he showed the same reluctance as Boerhaave, claiming that the internal senses are 'a metaphysical subject.'[117] Moreover, it seems that he returned to the characterization of madness as an illusion and refused to take the faculty of judgment as crucial in madness:

> The mind is deranged, when one confounds the objects of memory, or imagination, with the perceptions of the external senses, and thus ascribes existence to things which never did nor do exist; or when one's judgment of things is perverted, and foreign from the common sense of mankind. But this seldom or never happens. A deranged person usually judges rationally, though from false premises.[118]

The third edition of Encyclopedia Britannica, whose article 'medicine' is heavily influenced by James Gregory's Conspectus, also returned to the model of madness as an illusion. Although the article followed Cullen's nosology in its arrangement of diseases, the order 'vesaniae' was there presented in the traditional illusion model. It cited Battie and wrote that madness consists in a false perception. The article on 'delirium' says in an exactly Boerhaavean manner that it is the state 'when the ideas excited in

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115. As for the metaphysics of James Gregory, see Michael Barfoot, 'James Gregory and Scottish Scientific Metaphysics, 1750-1800,' University of Edinburgh, Ph.D., 1983.

116. James Gregory, A Conspectus or Brief View of the Theory of Medicine, (Edinburgh: Stirling and Slade, 1823).

117. James Gregory, 'Theory of Medicine: Notes of Lectures,' WIHM, Wes.Manu. 2597, p.377.

118. Gregory, Conspectus, p.82.

the mind do not correspond to the external objects, but are produced by the change induced on the common sensory.'[119]

Cullen's challenge, however, was not dead. Although my consideration of materials after about 1780 has not been systematic, there are strong indication of the emergence of the new style in medical discourse on madness in the late century. It seems that some graduates from Edinburgh propagated and developed his new model of madness and new pattern of psychiatric discourse later in the century. The new configuration appeared especially in the monographs on the topic of mental diseases, which became increasingly common in the late eighteenth century.

As for the nosology of madness, Thomas Arnold's contribution was outstanding.[120] He was one of the most prominent among the late eighteenth-century madhouse keepers who launched into publishing their observations on madness.[121] After he studied at Edinburgh and took an MD in 1766, he inherited a madhouse in Leicester from his father.[122] He published a book, Observations on the Nature, Kinds, Causes and Prevention of Insanity (1782-6), which was mentioned by Cullen in his lectures with greatest favour.[123] And Cullen's influence was in turn apparent in Arnold's book.

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119. Encyclopaedia Britannica, art., 'medicine,' (vol.11, p.283) and art. 'delirium.'

120. Like Cullen and Sauvages, Arnold distinguished nosology and pathology. Arnold, Observations, vol.1, lvi; nosology is discussed in vol.1, pp.26-251 and pathology in vol.2, pp.1-320.

121. For the private madhouse keepers in the late eighteenth century, see Roy Porter, Mind-forg'd Manacles, pp.136-68.

122. See Peter K. Carpenter, 'Thomas Arnold: a Provincial Psychiatrist in Georgian England,' Med.Hist., 1989, 33: 199-216.

123. 'The ingenious Dr. Arnold has been commendably employed in distinguishing the different species of insanity as they appear with respect to the mind...' Cullen, Works, vol.2, p.520.

Moreover, just as Sauvages adopted Wolff's and Cullen largely Hume's philosophy of the mind, Arnold made it explicit that he borrowed the basis for the classification of insanities from Locke's philosophy, especially Locke's division of the sources of human knowledge into sensation and reflection. Sensation involved the images of material objects and their sensible qualities, and the representations of them were named 'ideas.' Reflection for Arnold was found in judgment: constructing the relation between things and perceiving the operations of the mind itself, and this composite piece of thought was named 'notion.' To these two sources of knowledge corresponded Arnold's two genera of insanity, ideal insanity and notional insanity.[124] Notional insanity was disorder in judgment, rather than in imagination. While Arnold's ideal insanity was an hallucination, or a wrong perception of external things, his notional insanity was an active error of the mind that did not depend on the persuasion by illusion.[125]

The new pattern in monographs about mental diseases is found also in James Makittrick Adair's Philosophical and Medical Sketch of the Natural History of the Human Body and Mind (1787). In the work, Adair included a chapter titled 'The natural history of the human mind' (note the identical phrase with Cullen's).[126] There he defined madness just as Cullen had: 'Delirium is a general term, which implies an error of the

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124. Arnold, Observations, vol.1, pp.47-48 and 55-57. Here Arnold cited David Hartley as a revision to Locke's doctrine on the two sources of our knowledge, but he wrote 'the difference between Locke and Hartley is not very great.' Besides, he cited Ralph Cudworth and Lord Bolingbrook to establish the point. (Ibid., vol.1, xvii.)

125. Arnold, Observations, vol.1, p.84. As for the active aspect of reflection, see ibid, p.51.

126. James Adair Makittrick, A Philosophical and Medical Sketch, pp.54-96. Adair was educated at Edinburgh, took an MD there in 1766. In his Medical Cautions, for the Consideration of Invalids; Those Especially Who Resort to Bath (Bath: R. Cruttwell, 1786), he expressed his debt to Whytt.

judgment produced by some morbid change in the brain.'[127] In this argument, Adair relied heavily on the 'natural history of the human mind,' adopting the Lockean distinction of sensation and reflection, refusing innate ideas, explaining association of ideas in a Humean fashion, citing Berkeley's four stages of perception.[128]

Toward the end of the century, the new configuration of psychiatric discourse was sought after in a determined manner. An Inquiry into the Nature and Origin of Mental Derangement (1798), by Alexander Crichton, who had early surgical training at Edinburgh and got his MD at Leyden, argued that philosophy was an essentially part of psychiatric discourse.[129] This statement of the necessity of philosophy in treating the mad would have infuriated Haller, who wrote:

> though all these properties of the mind are real, yet is the knowledge of them of no use to the physician, so far as they have no relation to the body: for allowing him to be acquainted with all these particulars, and supposing that he endeavours to correct the inconsistent ideas of the madman by the most authentic reasoning..; yet with all his wisdom, he will be able to do nothing.[130]

In a sharp contrast to this scorn to philosophy, Crichton wrote in the preface of his book:

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127. Adair, A Philosophical and Medical Sketch, p.83.

128. Adair, An Philosophical and Medical Sketch, pp.56-66.

129. For Crichton, see the detailed study of Dora B. Weiner, 'Mind and Body in the Clinic: Philippe Pinel, Alexander Crichton, Dominique Esquirol, and the Birth of Psychiatry,' in The Language of Psyche: Mind and Body in Enlightenment Thought, ed. by G.S. Rousseau (Los Angeles: William Clark Memorial Library, 1990), 331-402. See also E.M. Tansey, 'The Life and Works of Sir Alexander Crichton, F.R.S. (1763-1856): a Scottish Physician to the Imperial Russian Court,' Royal Society of London: Records and Proceedings, 1983-84, **38**: 241-59.

130. Boerhaave, Dr. Boerhaave's Academical Lectures, vol.5, p.270.

> It is evidently required that he who undertakes to examine this branch of science [study of insanity] should be acquainted with the human mind in its sane state.[131]

To this end, Crichton acknowledged his debt to 'our British Psychologists, such as Locke, Hartley, Reid, Priestley, Stewart, Kames.'[132] It seems almost certain that Pinel echoed Crichton when a few years later he wrote 'I have ... felt the necessity of commencing my studies with examining the numerous and important facts which have been discovered and detailed by modern pneumatologists [nos psychologistes modernes]' like 'Locke, [James] Harris, Condillac, [Adam] Smith, Stewart, etc.'[133]

Although one cannot assume a direct path from Cullen to Crichton and Pinel, their attempt to fuse medicine and philosophy to create a new language of psychiatry seems to have its prototype in Cullen's venture to introduce Humean philosophy into medical study of man. This conflicts with Roy Porter's view on the origin of the new psychiatric discourse. Observing 'the division of intellectual labour between philosophers of the mind and physicians of the body,' Porter has claimed that 'when a new discourse about insanity emerged, it developed outside the traditions of both regular medicine and metaphysical philosophy.'[134] Porter's observation fits in quite well with Boerhaave's and Haller's rather rigid elimination of philosophy of the mind from the scope of medicine, and

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131. Crichton, An Inquiry, vol.1, ix-x. Here again, the model of the study of the human mind was 'natural history.' Crichton wrote that psychiatrist should undertake introspection and examine his own mind 'with the impartiality of a natural historian.'

132. Crichton, An Inquiry, xxvii. Besides, he mentioned 'German philosophers' and Condillac. See Weiner, 'Mind and Body in the Clinic,' esp. 364-84.

133. Pinel, A Treatise on Insanity, p.135; idem, Traité médico-philosophique, p.136.

134. Porter, Mind-forg'd Manacles, p.205.

with Battie's dubbing the description of the mental situation of the disordered mind as belonging to 'a vulgar apprehension.' However Cullen and Sauvages instead expanded the scope of medicine to incorporate the language of the contemporary philosophers and to restructure the psychiatric parts of their general medical schemes accordingly. It seems that the new psychiatric discourse was emerging, therefore, not outside the regular medicine, but within the internal attempts to reform the configuration of medical knowledge, and the works of Arnold and Adair, both trained at Edinburgh, exemplify the point. We should thus add the reforms of medical knowledge and incorporation of the language of philosophy, especially that of Cullen, to our list of the elements which constituted the birth of psychiatry.

Conclusion

In this thesis, I have examined various patterns of psychiatric discourse from the Restoration to the 1770s. I have limited my argument to medical and philosophical concepts of madness, leaving untouched such problems as fictional representations of madness and social and institutional treatment of the insane. I have also restricted my major concern to British writings, although I have considered Continental materials to provide context. Here I shall first summarize the points I have made in each chapter, and then assess general features and shifts in the period I have covered.

In Chapter one, I examined continuities and changes in psychiatry around 1660, taking the Restoration Oxford and especially Thomas Willis as the principal site of inquiry. I considered the question whether the mechanical understanding of the human body and mind-body dualism transformed psychiatric thinking at that time, using Cartesianism as the framework to analyze the psychiatric discourse at that time.

My examination of the writings of Thomas Willis and Walter Charleton showed that they were both anti-Cartesian in respect of mind-body dualism. Partly following the medical tradition and partly following Gassendi, Willis and Charleton argued that there existed three categorically different things in man, namely, the immaterial soul, the corporeal body, and 'the soul of brutes.' This last thing, whose existence Descartes denied from the beginning, was an intermediary between the soul and the body, an intellectual device to secure their interactions. Willis' De anima brutorum was an attempt to build the physiology and pathology of that intermediary substance. I tentatively argued that their denial of the Cartesian dualism and their adoption of the scheme of the dual souls in man reflected the 'duumvirate,' the political situation witnessed during the Civil War and the Restoration.

Willis' understanding of madness represented both continuities and changes from the earlier Renaissance and Neo-classical schemes. The

same diagnostic categories (phrenzy, mania and melancholia) and the same basic grid of the etiology of madness (disorder in the mind-body intermediate agent) were employed both by Willis and by earlier medical writers on madness. Particularly important was the rigorous pre-Cartesian dualism which stated that the soul per se was intact in madness, and that the body (or the material agent of the mind-body medium) was the sole site of disorder. Christianity had been challenged at that time by the polemic of Lucretius, and in response, many late sixteenth- and early seventeenth-century physicians such as Timothy Bright and André du Laurens were keen to establish the intactness of the soul in madness, to defend the doctrine of the immortality of the soul. This pre-Cartesian dualistic pattern of pathology was to remain a constant undercurrent of psychiatric discourse in the period I have covered in this thesis.

Descartes transformed one important aspect of psychiatric theory by creating a new mechanistic epistemology. Departing from the Aristotelian epistemology of intentional species residing in the objects perceived, Descartes argued that matter in motion alone triggered a corresponding idea by giving a mechanical shock to the seat of the soul. Maintaining thus that the most vital thing in perception is mechanical shock, Descartes constructed a model of madness as an illusion triggered by a wrong flow of the animal spirits. Adopted by Willis and Friedrich Hoffmann and provided by them with a physiological substructure, this Cartesian model of madness as an illusion was to be another undercurrent of psychiatry during the eighteenth century.

The second chapter looked at the idiosyncratic research programme of the iatro-mathematical school, which was active from around 1690 to 1720. With Archibald Pitcairn as the leading figure, physicians like Richard Mead, George Cheyne, John Quincy and James Keill tried to establish certain foundations of medicine. They thus redefined the scope of medical knowledge, determining proper objects of knowledge and excluding improper ones. Relying on the scientific methodology and the empiricist epistemology of the time, and attacking the 'empirical' ideal of

medicine, the iatro-mathematicians thought that certainty in medicine could be achieved only by restricting medical knowledge to that derived from the senses and expressed in a mathematical and demonstrative format.

It is thus not surprising that the iatro-mathematicians avoided anything associated with the the soul/mind (which was neither measurable not given to the senses), and built a framework in which they could concentrate on the hydraulics of the body. They put the role of the soul in interactive phenomena in parentheses, and devised, so to speak, a black-box theory of the soul, bracketing mental issues off from the scope of their discourse. Accordingly, madness was for them not a problem of higher mental faculties as it was for other medical theorists at that time. Instead, madness was a disordered reflex motion, a disorder in which the mind played no part. As Richard Mead put it, madness 'was not a distemper of the mind but of the body.'

Chapter three dealt with hysteria and hypochondria, which became a fashionable medical topic in the early eighteenth century. Under the influence of Boerhaave, many medical writers at that time adopted the notion of nervous fibre as one of the fundamental units of the human body, and conceptualized hysteria and hypochondria as the disorders of these fibres. With the revival of issues related to the mind, physicians characterized hysteria and hypochondria as a milder analogue of mania and melancholia involving damages of higher mental faculties, although they laid more emphasis on the symptom of inconstant mood involved in the former group of diseases. This complex and vague construction of the mental symptoms of hysteria and hypochondria showed the lack of any tight dichotomy between intellectual and emotional diseases at that time. Despite the re-introduction of the language of mind into medical accounts of madness, medical discourse on mind-body interaction at that time was limited to corporeal issues.

I also highlighted some socio-ideological aspects of the medical account of hysteria and hypochondria. Rejecting the attribution of the

spleen to mental whims as a vulgar error, many physicians such as George Cheyne, Richard Blackmore and Nicholas Robinson argued for the instruction of lay people regarding the bodily interpretation of the diseases. They also associated undesirable religious attitudes, such as enthusiasm, religious depression and atheism, with bodily malfunctioning. The body was regarded as not only sickening but also improving the mind: by refining one's body, one could develop moral virtues as well as keen intellect. This progress of natural and bodily interpretation of the mind, however, was not in conflict with religion at that time. Indeed, the religious profession welcomed the physicians' opinion, and allied themselves to them in the Enlightenment cause.

Another Enlightenment trend was obvious in medical writings dealing with the nervous diseases. Physicians maintained that the human mind is malleable through environmental influence, encompassing natural, social, economic, and political factors. There appeared the idea that nervous diseases were a disease of the Enlightenment, associated with, or even generated by, flourishing economy and culture, and a high-consuming life style. On the other hand, the cure of the diseases also had a place in the Enlightenment ideal, i.e., an active, social, and cheerful life.

In Chapter four, I dealt with the problem of Lockeanism in the medical understanding of the mind and its diseases. The influence of Locke on medical writings on the mind during the earlier half of the eighteenth century was surprisingly small. I argued that this was mainly because physicians at that time were primarily interested in the bodily side of the mind-body interaction, and rejected purely mental issues as a metaphysical topic. Locke, by comparison, limited his arguments to the mental issues, largely keeping himself away from their bodily aspects, or 'the physical considerations.' Physicians and Locke were talking about different planes of the human mind/soul.

Moreover, some medical writers such as Cheyne and Robinson in the earlier half of the century were explicitly hostile to Lockeanism. The intellectual background of the hostility was the debate over Locke's

'thinking matter' hypothesis, which involved issues related to the problem of the interpretation of madness. Metaphysicians at that time adopted the same strategy as that employed in the seventeenth century, and tried to establish a dualistic account of madness, refuting the materialists' polemical use of the case of madness, but they approached the problem in a different way. Instead of securing the immaterial faculty of reason, they 'proved' the intactness of the soul by arguing that original and hidden powers of the soul did not suffer in madness. Adopting the same tactics, physicians embraced a metaphysical and anti-Lockean approach for understanding human mental operations. They framed their discourse on the mind around the soul as an other-worldly substance and the body as its prison, both of which were not Locke's major concern.

In his Observations on Man, David Hartley started a new approach. Using Locke's theory of association of ideas and Newton's theory of vibration as fundamental devices, Hartley bridged the gap between the philosopher's account of mental operations and physicians' explanation of the bodily phenomena which accompanied them. Hartley created a new field of discourse, where physiology and Lockean psychology of the mind (instead of the pneumatology of the other-worldly substance) were fused together. Hartley's scheme involved a new constructive, rather than limiting, role for the body, and a more important role of sensation in makings of the mind.

Chapter five closely examined the dispute between William Battie and John Monro. Instead of looking at Battie as an anticipation or precursor of what was to come after him, I contextualized him into his own time. I focussed on two neglected aspects of their dispute, namely mid-century physiology of the nerves and the philosophical and medical understanding of perception. Mid-century vitalism and the idea of nervous sensibility cast a long shadow on Battie's theory on madness. In particular, Battie constructed his account of madness as a faithful analogue of Albrecht von Haller's experiments on the sensibility of the nerves of living animals. Just as Haller's animals felt sensations of pain when touched on

the nerves, Battie's madman had an illusion when he had a pathological stimulation on the nerves.

Their dispute over whether madness consisted in delusive sensation or in vitiated judgment was strongly connected with the medical and philosophical understanding of the process of perception. Partly inspired by 'Molyneux's question' presented by Locke, and partly in an attempt to distinguish the bodily and mental processes of perception, mid-century philosophers and physicians distinguished the processes of sensation and judgment. Under their schemes, the simple sensation did not provide a complete account of perception; the exercise of judgment on the sensation was also essential for perception of external things. Hence madness did not solely consist in simple illusion, but in forming a wrong judgment on the illusion. Although Boerhaave, Haller, and Battie himself were aware of the problem, they laid much more emphasis on the bodily process of illusion in madness, assigning the mind only the passive role of being persuaded by the illusion. Monro switched the emphasis onto the process of judgment, anticipating ideas expressed a few decades later.

The last and sixth chapter examined a new construction of psychiatric discourse beginning in the 1760s. The shift involved there was epitomized in the different accounts of madness in Boissier de Sauvages' two nosological works, the first published in the early 1730s, the other about thirty years later. Departing from the former bodily understanding of madness, the Cartesian model of madness as illusion, and from the strict distinction between philosophical and medical inquiries of the mind, Sauvages' later work embraced a teleological understanding of madness (madness as resembling being an American who could not pursue true happiness), which encompassed both bodily and psychological aspects. I argued that this new grid to describe madness was possible because Sauvages adopted the philosophy of Christian Wolff, and incorporated Wolff's language on the mind into his medical discourse.

Somewhat parallel shifts in the structure of psychiatric discourse took place in William Cullen's medical textbooks. Cullen used a

substantial amount of the philosophical vocabulary of David Hume to describe both the normal and disordered states of the mind. Relying on Hume's idea of association and custom as the sole basis of judgment, Cullen departed from the former model of madness as an illusion and re-defined madness as a mis-association and an abnormal judgment, both in social and individual terms. Cullen's defied earlier resrictions on the scope of medical discourse, and expanded its language to include the 'natural history of the human mind.' Cullen's work was seen more broadly in the context of the Scottish Enlightenment, where physicians and philosophers were collaborating, engaged in the study of man. I concluded this chapter with the suggestion that Cullen's fusion of the language of physiology and the language of the philosophy of human mental operations served as a matrix from which specialized psychiatric discourse emerged in the late eighteenth and early nineteenth century.

I will now connect the points I have made separately in the chapters above and assess general features of the psychiatric thinking during the period covered. I want to start by re-emphasizing that eighteenth-century psychiatry was not a monolith. Instead of a single dominant paradigm, there were several distinctive patterns of psychiatric discourse, often formulated in fundamentally different ways, replacing one another relatively quickly or existing contemporaneously with each other. It is very hard to find an isomorphic structure between the iatro-mathematicians' 'psychiatry without mind' and Sauvages' psychological approaches based on the heavy use of the philosophy of Wolff. A sharp contrast existed between Cheyne's and Robinson's bodies of knowledge based on the overtly other-worldly soul, and Hartley's system which incorporated the Lockean language describing this-worldly operations of the mind. Despite their embracing a parallel notion of the third intermediate matter endowed with a special quality, Battie's Hallerian, experimental and visible model of the etiology of madness differed greatly from Willis's accounts of madness established on the Gassendian, hypothetical, and intangible

corporeal soul. Fluctuations, rather than a stable development, characterized the psychiatric discourse in the period covered by this thesis.

Some of the most obvious factors underlying the fluctuations were shifts in the medical/scientific paradigms. Each scheme I have examined had a unique pathology of mental diseases. Willis's shift from the Galenic theory of the humours to a chemical-corpuscular theory led him to draw analogies between chemical substances, animal spirits, and the mental symptoms of madness. Following Haller's experiments, Battie constructed the model of madness as an analogue of sensibility of vivisected animals. Cullen's vitalist theory of nervous excitement and collapse constituted mania as a state of over-excitement and provided a basis of the therapeutics he recommended. These medical-scientific issues indeed had a profound impact on the eighteenth-century understandings of mental diseases. The most striking example may be the research programme of the iatro-mathematicians. Their attempts to establish certain and purely bodily medicine led them to construct a unique psychiatry which dispensed with any mental issues.

Shifts in psychiatric discourse during the eighteenth century did not, however, reflect solely medical and scientific theory. The field was also open to another domain--the philosophy and the metaphysics of the soul/mind--although to make too rigid a distinction between medical and philosophical domains would be anachronistic. Sometimes a single source produced dual impacts in both medical and philosophical terms. Thus Descartes' mechanical physiology and his epistemology seem to have transformed the medical understanding of madness at Oxford.

One common metaphysical undercurrent of contemporary psychiatric discourse was the immortality and incorruptibility of the soul, reflecting the religious instability of the early modern period. Alarmed at the revival of Lucretius's use of madness and its cure as evidence against immortality, and, more generally, anxious at religious turmoil and unbelief, Renaissance and Neo-classical doctors such as Timothy Bright and André

du Laurens established a rigorously dualistic account of madness, in which only the body was disordered and the soul itself remained intact. Propagated by Descartes and others, dualism became a built-in part of medicine and of its account of madness in the seventeenth and eighteenth centuries. When the 'thinking matter' hypothesis inspired by Locke posed a threat to the doctrine of the immortality and immateriality of the soul, both physicians and metaphysicians joined in defence of Christianity and reinforced the intactness of the soul in madness.

This scheme to defend the immateriality, immortality and incorruptibility of the soul led physicians to locate madness exclusively in the body. Within the scheme, the body was the only metaphysically correct site of madness. The somatic understanding of madness during the period examined was, therefore, a product of the metaphysics of the soul and of the ideological defence of the doctrine of Christianity from atheist and materialist attack. Although there existed a certain concern for building 'scientific' medicine by eliminating the metaphysical issues related to the soul and by limiting the scope of medical discourse to the bodily issues alone (best exemplified in the system of the iatro-mathematicians), to identify the bodily accounts of madness in the seventeenth and eighteenth centuries as simply 'scientific' would be entirely anachronistic.

Metaphysical and ideological issues also seem to have cast a long shadow on the therapeutics of madness during this period. When a man became mad, to use the physicians' favourite metaphor, the skilful organist (the soul) was still there, retaining all his superb skill, but suffering from some defects in the instrument (the body) and hence unable to make as good a performance as before. The physician's task was, therefore, to rectify the organ and to remove the impediments. Overwhelming emphasis in the cure of madness was thus placed on the medical intervention principally aimed at the body of the mad. Even when physicians adopted a seemingly psychological intervention, such as acting on the passions, the rationale attached to the method was always centred around the body of the patients. From the mid-eighteenth century, however, new techniques

for handling the mind were coming to the fore, best exemplified in Battie's emphasis on management. The path from bodily therapeutics to psychological ones, and its relation to metaphysics and to the growth of institutions, remains to be examined.

Another implication of the model of the immortality of the soul was that a madman, however raving, was not supposed to have lost the essence of humanity. His soul, which distinguished him from a beast and made him a man, remained intact even in the most violent fit of madness. Despite some bestial imagery of madness, psychiatric discourse did not at its theoretical centre identify the madman as a soulless brute. Although attitudes towards the mad and their treatment did not depend solely on psychiatric theory, one can safely argue that no psychiatric theories of the period were based on the identification of the mad and beasts.

Regarding the existence of an immaterial substance in man, there was almost unanimous agreement among physicians (of course, with a handful of exceptions such as La Mettrie). In other words, an overwhelming majority of the medical accounts of madness were dualistic. Natural philosophers, physicians and metaphysicians disagreed within the dualistic framework, however. The most visible point of disagreement was whether there existed a special category of matter endowed with unique powers. Descartes and Boerhaave denied such a thing, while Willis' 'corporeal soul,' and Haller's, Battie's and Cullen's nerves endowed with a special property of sensibility represented the notions of sensible special matter.

Less visible but more important was the departure from the Cartesian 'trialism' which said that there existed two different kinds of the operations of the mind, one being purely mental and the other interactive. Early- and mid-century physicians such as Cheyne and Nicholas Robinson started to understand dualism in a different way. In their dualistic scheme, incorruptibility resided not in the actual operation of higher mental faculties such as reasoning and reflection, but in the hidden original powers of the soul. The Cartesian bodiless cogito was denied, and our

mental activities were understood as products of the interaction between the original powers of the soul and the body which impeded them. Although in a radically different way, David Hartley also underpinned all mental operations with corresponding bodily processes. Hartley analyzed mental faculties into mental atoms of ideas associated with each other, which corresponded with the bodily units of vibrations. Hartley thus established a psychology entirely based on the body.

The new versions of dualism implied that physicians no longer had to construct their accounts of madness solely or principally with reference to interactive and lower mental faculties like sensation and imagination. The rigid distinction between the interactive, lower and corruptible faculties and the purely mental, higher and incorruptible ones disappeared. Under the old version of dualism, physicians were largely concentrating on the process of image-making as the key to understanding madness. Renaissance and Neo-classical doctors blamed the faculty of the imagination, and Descartes' new epistemology equated madness with the production of false images by a disordered flow of the animal spirits. Despite being aware that madness was something more than a simple delusion, Boerhaave, Haller, and Battie adopted the same model of madness as an illusion and disordered imagination, assigning the mind only the passive role of being persuaded.

In sharp contrast, late-century psychiatric discourse defied the centrality of the faculty of the imagination and the model of madness as illusion. Higher faculties like judgment were introduced by Monro, Sauvages, and Cullen as the key to the disordered mind. The field of the mind which was thus susceptible to the bodily disorders was extended. In the late century, psychiatric discourse started to penetrate more deeply into the disordered mind, beyond the barriers which separated corruptible imagination from imperishable reason, physician's domain from philosopher's field, and the body from the mind.

Enlargement of the language of psychiatric discourse was also prompted by physicians' adoption of new languages of the philosophy of

the mind. Alarmed at the implications of the passive mind contained in mechanical medicine, Sauvages embraced Wolff's philosophy of the active mind. Defying Boerhaave's and many others' limiting of the proper language for medicine to the body, departing from Locke's distinction between science of the mind and 'physical considerations,' and following the tide of the new study of man in the Scottish Enlightenment, Cullen let the language of Locke and Hume, or the 'natural history of the human mind,' into his medical language. Although anticipated by Hartley, the new pattern of medical discourse on the human mind, a pattern which encompassed both 'the physical consideration' and 'the natural history of the human mind,' was not established firmly until Cullen.

The enormous success of Cullen's medical textbooks meant that the new pattern of medical discourse on the mind was easily available in the 1780s and 90s, the period when psychiatry as specialized discipline was taking a solid and visible form. 'Psychiatry' as a relatively independent branch of medical practice, based on both public and private specialized institutions for the mad, was emerging with Cullen's medical system as its matrix. It is thus not surprising that Thomas Arnold adopted Lockean philosophy as the essential framework of his classification of mental diseases, and that Alexander Crichton and Philippe Pinel started to base their specialized discourse on mental diseases on the philosophy of the mind.

Detailed analysis of the works of Arnold, Crichton, Pinel, and their contemporaries, however, lies beyond the scope of this thesis. The concern of the thesis has been a pre-history of the 'birth of psychiatry.' With those household names that constituted the birth of psychiatry, it seems the time to stop. As for the process of the birth of psychiatry itself,

Forse altri cantarà con miglior plettro.

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